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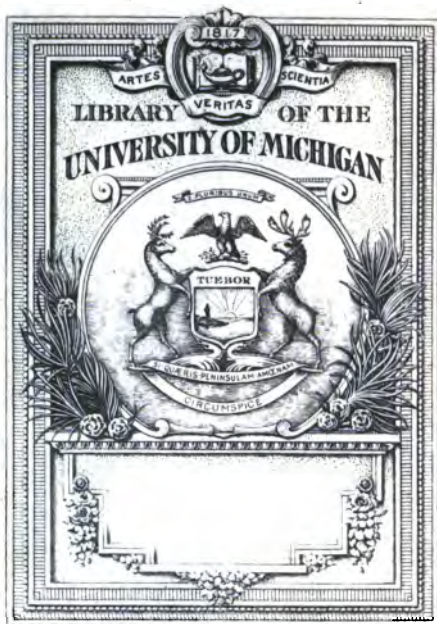
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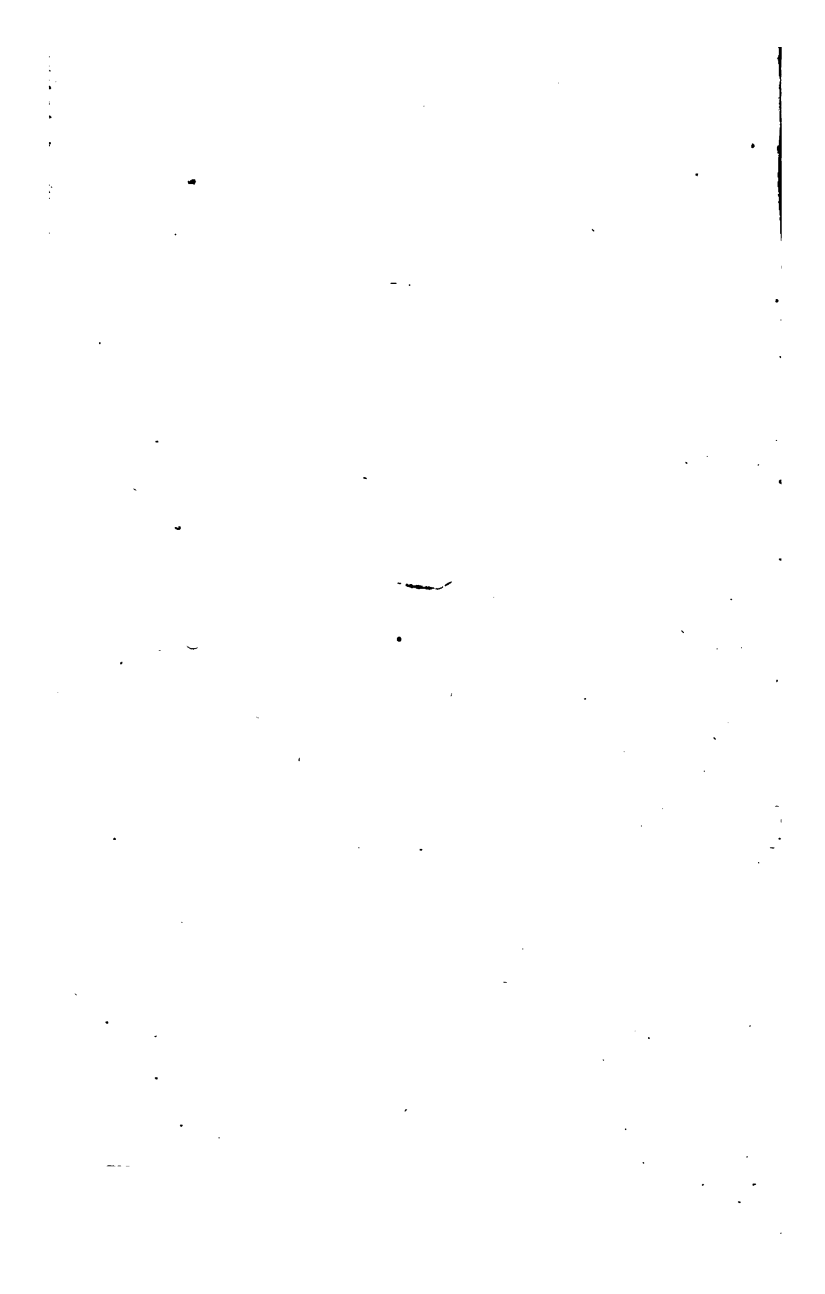
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And the Second of the NEW STYLE in *England*.

——— Quâ causâ argentea Phœbe
Passibus haud æquis graditur; cur subdita nulli
Hactenus Astronomo numerorum fræna recusat:
Cur remeant Nodi, curque Auges progrediuntur.

——— Quantis refluxum vaga Cynthia pontum
Viribus impellit; dum fractis fluctibus ulvam
Deserit, ac Nautis suspectas nudat arenas,
Alternis vicibus suprema ad littora pulsans.

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To the PUBLICK.

HAVING always more Room in the Kalendar Part of our Diary than we can possibly fill up with *good Weather*; we expect that an exact Account of all the FAIRS in *England*, as fixed since the Regulation of the Style, will supply that Room better than *bad Weather*; and also be of more general Service, to *Tradesmen, Dealers, &c.* according to the Plan in the KALENDAR this Year; and if this be agreeable, shall for the future publish them annually, according to the best Information we can procure from our Contributors in their respective Neighbourhoods, &c.

JANUARY hath xxxi Days.

First Quarter the first Day at 7 at Night.
 Full Moon the 9 Day at 2 in the Morning
 Last Quarter the 15 Day at 40 min. past 5 Afternoon
 New Moon the 23 Day at 9 in the Morning.
 First Quarter the 31 Day a quartet past 2 Afternoon.

M	Suns
D	Decl.
1	23 05 0
6	22 28
11	21 45
16	20 50
21	19 50
26	18 26

1 Tu	Circumcision, New-Years-Day.	Morn.	5 A	49
2 W	Day 7 hours 53 minutes long.	0	30	6 33
3 Th	Day increas'd 10 minutes.	1	35	7 18
4 F	<i>We shall not be much more particular</i>	2	41	8 6
5 S	Old Christmas Day.	3	47	8 58
6 F	Epiph CHRIST's * app. to Gentiles	4	53	9 54
7 M	<i>than usual; but as some expect that</i>	5	55	10 53
8 Tu	Lucian, Priest and Martyr.	6	51	11 50
9 W	<i>this Year, in regard to the Weather,</i>	Rises Morn.		
10 Th	Princess ELIZABETH born.	6 A	29	0 49
11 F	<i>something shou'd be said about it;</i>	7	48	1 46
12 S	Old New-Years-Day.	9	7	2 41
13 F	1 Sunday after Epiphany. Hillary B	10	25	3 35
14 M	<i>those may expect cold Frost and Snow;</i>	11	42	4 27
15 Tu	<i>or perhaps Rain with rough Winds;</i>	Morn.		
16 W	<i>but possibly it may happen to be an</i>	0	57	6 10
17 Th	<i>open, mild and favourable Time. the</i>	2	8	7 1
18 F	<i>fair at Mott always (Frid. at 13 Jan</i>	3	15	7 52
19 S	<i>Season of the Year consider'd.</i>	4	17	8 43
20 F	2 Sunday after Epiphany. [Ret.	5	11	9 35
21 M	Agnes, Rom. V. & M. Oct. Hil 1.	5	57	10 25
22 Tu	Bluc. Span. Deac. M. Melt Mowbray.	6	37	11 14
23 W	Hillary Term begins.	Sets 0 A 0		
24 Th	Days are now increased 1 Hour.	5 A	58	0 46
25 F	Convers. of St. PAUL. Leighton Buz	7	0	1 30
26 S	Day 8 hours 50 minutes long.	8	3	2 12
27 F	3 Sunday after Epiphany.	9	6	2 54
28 M	Quind Hil. 2. Ret.	10	8	3 36
29 Tu	January Weather still.	11	10	4 19
30 W	K. CHARLES I. Mart.	Morn.		
31 Th	Days increased 1 hour 24 Minute	0	12	5 49

n	D	☉ Rises	☉ Sets	☿ Rises	♂ Rises	♂ Sets	♀ Rises	♂ Rises	W. fast.
1	8	4	3 56	7 M 56	7 A 0	3 M 57	6 M 32	6 M 40	4' 22"
6	8	0	4 7	38 6	3 3	40 6	41 5	14 6	38
11	7	55	4 57	19 6	9 3	24 6	48 6	8 8	43
16	7	50	4 10	5 59	5 45	3 11	6 53	6 15	10 30
21	7	43	4 17	6 40	5 20	2 58	6 57	6 24	12 2
26	7	36	4 24	6 20	4 56	2 46	6 59	6 29	13 15

FEBRUARY hath xxviii Days.

M. Sun's
D. Decr.

Full Moon the 7 Day three Quarters past Noon.	1	7	30
1st Quarter the 14 th 11 min. past 5 in the Morn.	11	13	52
New Moon 22 Day 3 quarters past 3 in the Morn.	12	12	10
	13	10	24
	20	8	32

W D	Sundays, Holidays, remarkable Days Length, Incr. Days, Terms, Fairs, &c.	Rise and Sets	Moon South
1	Day. 9 hours 9 minutes long.	1 M 15	5 A 38
2	Purif. V. MARY. Candlemas Day.	2 22	7 31
3	Sunday after Epiphany.	3 27	8 27
4	Craft. Purif. 3. Return. (Derby, the 5	4 25	9 25
5	Agatha Sicil V. and M Old St. Paul	5 18	10 24
6	Days increas'd 1 hour 43 min.	6 3	11 22
7	Th <i>Very likely to be (very) winter. Weather:</i>	7 A 34	0 20
8	F <i>but possibly not very disagreeable to those</i>	8 57	1 15
9	S <i>who have plenty of Food and Fuel; and</i>	9 19	2 12
10	Septuagesima Sunday.	10 36	3 7
11	M Octab. Purif. 4 Returns.	11 50	4 1
12	Tu Hilary Term ends.	Morn.	4 53
13	W Old Candlemas Day.	1 3	5 45
14	Th Valentine Bish. and M.	2 6	6 36
15	F <i>have nothing else to do but to keep their</i>	3 3	7 28
16	S <i>own or their Neighbours Fire sides warm.</i>	3 55	8 18
17	Sexagesima Sunday.	4 37	9 7
18	M <i>Nun Eaton.</i>	5 13	9 54
19	Tu <i>We may expect that Winter is now, or</i>	5 42	10 40
20	W <i>soon will bewithdrawing itself (from us)</i>	6 12	11 26
21	Th Day 10 hours. 22 min. long.	6 A 55	0 51
22	F Days increas'd 2 hours 54 min.	8 1	1 33
23	S <i>but still a good Companion, and a (Fast</i>	9 4	2 15
24	Quinquagesima S. St. MATTHEIAS Ap.	10 6	3 0
25	M <i>good Fire may be very agreeable.</i>	11 8	3 46
26	Tu Shrove Tuesday.	Morn.	4 34
27	W Ash Wednesday. 1st Day of Lent		
28	Th Day 10 hours 40 min long		

M D	☉ Rises	☉ Sets	☿ Rises	♂ Rises	♂ Sets	♀ Rises	♂ Rises	W. fast.
1	7 26	4 35	5 M 58	4 A 27	2 M 35	1 M 59	6 M 38	14 14
6	7 18	4 44	5 40	4 Sets.	2 26	5 57	6 43	14 41
11	7 7	4 53	5 22	6 M 56	2 18	5 54	6 47	14 46
16	7 0	5 1	5 46	6 36	2 10	5 49	6 48	14 35
21	6 50	5 11	4 46	6 15	2 2	5 44	6 48	14 05
26	6 40	5 21	4 29	5 55	1 58	5 38	6 43	13 20

MARCH hath XXXI Days.

		[D]	Declin.
First Quarter the 2d Day 48 min past 5 in the Morning.		17	S 24
Full Moon the 8th 3 quarters after 10 at Night.		65	30
Last Quarter the 15th 49 min past 6 Afternoon.		113	32
New Moon the 23d 11 min past 10 at Night.		161	30
First Quarter the 31st 20 min past 5 in the Morning.		210	N 20
		2612	23
1 F	DAVID Archb. Minv.	0 M 11	5 A 24
2 S	Cedde or Chad B. Litch.	1 15	6 17
3 F	1 Sunday in Lent. Quadragesima.	2 11	7 12
4 M	Pontefract 1st Mond. in March fix'd.	3 6	8 8
5 Tu	Day 11 hours long.	3 54	9 5
6 W	Ember W. Chipping Norton Oxf 7th.	4 37	10 3
7 Th	Old St. Mar. Fair at Porting.	5 11	11 2
8 F	Days increas'd 3 hours 3 quarters.	5 Rises	11 59
9 S	Not very unpleasant, except troublesome	6 A 54	Morn.
10 F	2 Sunday in Lent. Reminiscere.	8 15	0 55
11 M	Day 11 hours and half long.	9 36	1 51
12 Tu	Greg. M. B of R. & C.	10 52	2 46
13 W	March Winds with Snow or Rain	Morn.	3 41
14 Th	should make it disagreeable.	0 1	4 36
15 F	Ofweftry, Salop. Derby. Fud. Ash. W.	1 2	5 28
16 S	Days increas'd 4 hours and half	1 58	6 20
17 F	3 Sunday in Lent.	2 44	7 10
18 M	Ed. K. of Welf. Sax.	3 21	8 0
19 Tu	☉ rises and sets due East and West.	3 53	8 4
20 W	☉ or 4 h 43'. 48". P.M. equal Day	4 23	9 3
21 Th	Benedict. Abbot. [and Night.	4 48	10 1
22 F	March Winds may still be expected and	5 11	10 5
23 S	possibly rough and cold. ☉ Eccl. in Fast.	5 Sets	11 4
24 F	4 Sunday in Lent, or Midlent Sund.	7 A 0	0 A 2
25 M	Annunc. Lady Day Pl. EDWARD b.	8 4	1
26 Tu	Day 12 hours and half long.	9 8	1 5
27 W	☉ due E. 6 ho. 7 min. Alt. 20. 58	10 11	2 4
28 Th	March Weather still, and to	11 13	3 2
29 F	the End	Morn.	4 2
30 S	☉ Amplitude North 7 degrees	0 13	5 1
31 F	5 Sunday in Lent,	1 0	6

M D	☉ Rises	☉ Sets	☽ Rises	☽ Sets	☿ Rises	♀ Rises	♀ Sets	W. T.
1	34	27	4 M 19	5 M 43	1 M 54	6 M 34	5 A 9	12 4
6	24	37	4 2	5 23	1 50	6 28	5 44	11 3
11	14	47	4 3	5 41	1 45	6 20	6 22	10 2
16	4	57	4 28	4 44	1 35	6 11	7 4	8 1
21	59	6	4 1	4 25	1 30	6 3	7 41	7 2
26	44	16	4 5	4 71	1 20	6 5	8 6	5 3

APRIL hath xxx Days.

M D Sun's Declin.

Full Moon 7th Day 10 min. past 8 in the Morn.	1	4	N 45
Last Quarter 14th 18 min. past 10 in the Morn.	6	6	37
New Moon 22d 51 min. past 2 Afternoon.	11	8	29
First Quarter 30th a quart. past 1 in the Morn.	16	10	17
	21	12	0
	26	13	39

1 M	All Fools Day.	2 M	1	7	A 2
2 Tu	Days increas'd 5 hours and half.	2	42	7	58
3 W	Richard Bish. of Chich.	3	13	8	54
4 Th	St. Ambrose, Bish. of Mil.	3	47	9	50
5 F	Old Lady Day.	4	25	10	45
6 S	Ecl. 7th total, but invisible.	4	58	11	41
7 S	6 Sunday in Lent. Palm Sunday.	5	Rises	Morn.	
8 M	April Showers (perhaps) attended	8	A 32	0	38
9 Tu	with Thunder, but possibly otherwise,	9	47	1	34
10 W	viz. old fashioned March Winds	10	55	2	30
11 Th	fair at Notting. Mansfield, and	11	55	3	25
12 F	GOOD FRI. [Kirkby-Lonsdale, Westm.	Morn.	4	19	
13 S	Days increas'd, 6 hours 20 min.	0	45	5	12
14 F	EASTER DAY. Our SAV. Ref.	1	27	6	2
15 M	Easter Mond. Shefford, in Bedfordf.	2	3	6	50
16 Tu	Easter Tuesday.	2	34	7	36
17 W	Day 13 hours 56 min. long.	3	2	8	20
18 Th	☉ due E. 6 ho. 37' Alt. 14°. 50'.	3	25	9	3
19 F	Derby.	3	47	9	45
20 S	Days increas'd 6 hours 56 min.	4	10	10	28
21 F	1 Sund. after Easter. Low Sunday.	4	33	11	12
22 M	Bedford. Newport-Pagnel, Bucks. ☉	5	Sets	11	56
23 Tu	St. GEORGE. [Ecl. invis.	8	A 11	0	A 42
24 W	Hope for fine Weather to the End.	9	14	1	31
25 Th	St. MARK the Evangelist.	10	15	2	23
26 F	Prince WILLIAM born.	11	13	3	16
27 S	Boroughbridge, Yorksh.	Morn.	4	10	
28 F	2 Sunday after Easter.	0	1	5	4
29 M	Quin. Pasc. 1 Ret. Market-Haybor.	0	44	5	58
30 Tu	☉ rises Amplitude 25° 48'	1	21	6	52

M D	☉ Rises	☉ Sets	☿ Rises	♃ Sets	♂ Sets	♀	♂ Sets	W. fast
1	5 33	6 28	2 M 33	3 M 45	1 M 23	Npt	8 A 19	3' 55"
6	5 23	6 38	2 10	3 27	1 17	to be	8 10	2 24
11	5 31	6 48	1 57	3 8	1 10	seen.	7 43	0 58
16	5 4	6 57	1 41	2 51	1 4		7 3	Slow
21	4 54	7 7	1 21	2 33	0 57		Rises	1 28
26	4 41	7 16	1	2 15	0 49		4 M 22	2 25

MAY hath xxxi Days.

M Sun's
D Declin.

Full Moon	6th Day 24 min. past 5 Afternoon.	11 15 N 13
Last Quarter	14 Day 10 m. past 3 in the Morn.	6 16 40
New Moon	22d Day half past 4 in the Morn.	16 18 0
First Quarter	29 Day 4 min. past 6 in the Morn.	16 19 12
		21 20 17
		26 21 15

1 W	St. Ph. & Jac. Ap. & M. East. Ter. beg	1 M 54	7 A 46
2 Th	West Haddon, North. (1st Stockport)	2 25	8 39
3 F	Inv. of Cr. Derby (Overton, Hants 4	2 54	9 33
4 S	Boston, Linc. Amphill, Bedfordsh.	3 25	10 27
5 S	3 Sunday after Easter, Jubilate.	3 51	11 23
6 M	Trel. Patch 2 Retu. Pleasley, Nott.	3 Rises	Morn.
7 Tu	Chipping-Norton, Oxfordsh. the 6th	8 A 39	0 19
8 W	Market Bosworth.	9 46	1 15
9 Th	Higham-Ferrers.	10 41	2 11
10 F	Day 15 hours 20 min. long.	11 28	3 6
11 S	Tuxford. Nottinghamsh. the 13th.	Morn.	3 58
12 S	4 Sunday aft. Easter, Old May day	0 6	4 46
13 M	Ment. Patch 3 Ret. Warwick Leicefer	0 35	5 32
14 Tu	Elstow, Bedf. Nun-Eaton, Denbeigh.	1 0	6 19
15 W	(Newark, 14)	1 23	7 1
16 Th	Days increas'd 8 hours 1 quarter.	1 51	7 41
17 F	We have not room to say much of Wea-	2 16	8 28
18 S	☉ due E. 2 m. before 7 Alt. 25°. 25'	2 40	9 11
19 F	5 Sunday after Rogat. Sunday.	3 5	9 51
20 M	Quind. Patch 4 Ret. Reach, Cambr	3 13	10 40
21 Tu	D. x 15 hours 50 min. long.	4 0	11 3
22 W	Rogation Week. Mansfield Holy Th.	3 Sets	0 A 10
23 Th	Holy Thursd. CHRIST'S ASCENS.	9 A 25	1 11
24 F	Kirkby-Lonsdale, Westm. on Flo. Th	10 0	2 1
25 S	Day 16 ho. Night 8 hours long.	10 43	3
26 S	6 Sunday after Easter. Exaudi.	11 26	3 5
27 M	Term ends. Pornington.	11 57	4 4
28 Tu	ther this Month, but expect as usual.	Morn.	5 4
29 W	K. CHAR. II. Nat. and Return:	0 28	6 3
30 Th	Baldock, Hertfordsh.	0 57	7 2
31 F	Kettering, Nort. Chipping-Nort Oxf.	1 23	8 1

M D	☉ Rises	☉ Sets	☿ Rises	♄ Sets	♂ Rises	♂ Sets	♂ Rises	♂ Sets	♂ Rises	♂ Sets
1	4	36 7	25	0 M 45	1 M 57	0 M 42	8 A 0	4 M 7	3	10
6	4	28 7	33	0 26	1 39	0 33	8 22	3 58	3	42
11	4	20 7	41	0 6	1 21	0 23	8 37	3 47	4	6
16	4	12 7	49	1 A 41	1 4	0 12	8 52	3 37	4	2
21	4	5 7	55	11 21	0 4	0 1	9 7	3 26	3	50
26	3	50 8	1	11	0 26	1 A 10	0 26	3 17	2	7

JUNE hath xxx Days.

M | Sun's
D | Declin.

Full Moon 5 Day 50 min. past 2 in the Morning
 Last Quarter 12 Day 38 min. past 8 Aftern.
 New Moon 20 Day 20 min. past 3 Aftern.
 First Quarter 27 Day 7 min. past 11 Morn.

1 22 N 8
 6 22 43
 11 23 10
 16 23 24
 21 23 29
 26 23 24

1 S	Nicom. Rom. Pi. & M.	1 M	50	9 A	10
2 F	Whitsund. Def. of the Holy Ghost.	2	22	10	5
3 M	Monday. <i>Southwel.</i> [ton. Buzzard	2	57	11	0
4 Tu	Tues. Pr. of Wales b. <i>Newark, Leigh-</i>	3	36	11	55
5 W	Bonif. B. of Mentz. M. <i>Lenton.</i> Em W	3	Rises	Morn.	
6 Th	<i>Daventry</i> (Maidenhead Berk. Wh Wed	9 A	16	0	50
7 F	<i>Fine pleasant summer</i> (Bingham, Derby	10	0	1	45
8 S	<i>Weather will be very acceptable now.</i>	10	36	2	35
9 F	Trin Sund. Prs. AME. & CAROL. b	11	7	3	25
10 M	Craf. Trin. 1 Return.	11	33	4	10
1 Tu	St. BARNAB. A. & M. <i>Sheffield, York.</i>	11	56	4	55
2 W	Day 16 hours and a half long	Morn.	5	36	
3 Th	And Nights 7 ho. and almost half.	0	18	6	15
4 F	Term begins.	0	39	7	0
5 S	<i>Good Weather for the Lawyers, &c.</i>	1	0	7	45
6 F	1 Sunday after Trinity.	1	25	8	25
7 M	Oft Trin. 2 Ret. <i>St. Alb. Belton, Lei</i>	1	55	9	10
8 Tu	<i>and we hope, not bad for Farmers,</i>	2	29	10	4
9 W	<i>Graziers, Travellers, &c. &c. &c.</i>	3	8	10	55
10 Th	<i>Abingdon, Berks.</i>	3	Sets	11	50
11 F	☉ 3h. 9' 54" After Longest Day	8 A	37	0 A	47
12 S	K. GEO. II Inau <i>Boroughbrid. York.</i>	9	24	1	45
13 F	2 Sunday after Trin. <i>Cambridge</i>	9	55	2	35
14 M	Nat. of St. JOHN Bap. 2 Trin. 3 Ret.	10	28	3	35
15 Tu	<i>Aiconbury, Hunt. on New Midl. Day</i>	11	0	4	26
16 W	K. GEO. II. pro. 1727 <i>Bershire, Wo</i>	11	25	5	18
17 Th	<i>Brackley, Northam. 26. All their Fairs</i>	11	53	6	5
18 F	<i>Derby.</i> [are kept O S	Morn.	7	1	
19 S	St. PET. Ap. & Mart. <i>Wansfield, Nott.</i>	0	21	7	52
20 F	3 Sunday after Trinity.	0	53	8	45

V D	☉ Rises.	☉ Sets.	☿ Rises.	☿ Sets.	♂ Sets.	♀ Sets.	☿ Rises.	W. flow
1	3 53	8 7	10 A 36	0 M 3	11 A 34	9 A 30	3 M 7	2 41
6	3 49	8 11	10 14	11 A 40	11 21	9 36	3 12	1 52
11	3 46	8 14	9 52	11 21	11 8	9 42	3 18	0 55
16	3 44	8 16	9 31	11 3	10 54	9 44	3 24	Falt 6
21	3 45	8 17	9 8	10 44	10 41	9 45	3 36	1 10
26	3 44	8 16	8 46	10 25	10 26	9 43	9 Sets 17	2 1

JULY hath xxxi Days.

Full Moon 4 Day 17 min. past 1 in the Afternoon.
 Last Quarter 12 Day 5 min. before 2 Afternoon.
 New Moon 20 Day 6 min. past 12 in the Morn
 First Quarter 26 Day 11 min. past 4 Afternoon.

M	Sun's	Decl'n.
1	23	N 8
6	22	42
11	22	7
16	21	21
21	20	27
26	19	2

1 M	Tues Trin. 4 Ret.	1 M 30	9 A
2 Tu	Visit. of the B. V. Mary. Hereford	2 14	10 3
3 W	Term ends.	3 0	11 2
4 Th	City of Chester 5th. Lancaster, 4. 5. 6.	4 Rises	Morn
5 F	Cia Midf. Day. Warwick, Leicester.	8 A 27	0 1
6 S	Days decreas'd about 18 minutes.	9 0	1
7 F	4 Sun. after T. in Ch. a Bracket.	9 29	1 5
8 M	Now expect good Weather for Hay mak-	9 53	2 4
9 Tu	ers, and for ripening the Fruits of the	0 16	3 2
10 W	Old St. Pet. Day. Peterborough 3 Day	0 38	4
11 Th	Earth in general (but perhaps Rain mo-	1 0	4 5
12 F	derate, or accompanied with Storms, &c.	1 23	5 3
13 S	Woburn Batt.	1 50	6 1
14 F	5 Sunday after Trinity.	Morn.	7 2
15 M	Within.	0 20	7 40
16 Tu	Days decreas'd above half an hour	0 56	8 40
17 W	and are now about 16 hours long.	1 42	9 33
18 Th	Deubigh. Overton, Hants. Chipping	2 34	10 2
19 F	☉ Due E. 7 m. alt. 7. [Norton, Ox	3 35	11 2
20 S	Starg. V. & M. Antio. Alfreton, Derb	4 Sets	0 A 2
21 F	6 Sunday after Trinity.	8 A 25	1 10
22 M	Pr. CARO. MATIL. bo. Magdal	8 56	2 15
23 Tu	Derby 25.	9 26	3 8
24 W	St. JA. Ap. & Mar. Leighton-Buz, 2	9 54	4 C
25 Th	St. JUNE M. of B. V. M. Portfdown	0 22	4 5
26 F	☉ rising and setting Amplit. 33°.	0 51	5 4
27 S	7 Sunday after Trinity.	1 28	6 40
28 F	Eotheringhay, Northam. Winchome	Morn.	7 32
29 M	Glouc.	0 10	8 2
30 Tu	Lynton, Camb.	0 56	9 10
31 W	Dog Days begin,	1 48	10 11

M	D	☉ Rises	☉ Sets	h Rises	h Sets	☽ Sets	☽ Sets	☽ Sets	W. Part.
1	3	46	8	14	8 A 24	10 A 6	10 A 11	9 A 39	9 A 13 3 15
5	3	49	8	11	8	9 48	9 57	9 35	9 19 4 9
11	3	53	8	7	Sets	9 31	9 43	9 28	9 17 4 55
16	3	58	8	2	M 10	9 12	9 28	9 20	9 7 5 30
21	4	4	7	56	2	8 55	9 12	9 12	8 58 5 50
26	4	11	7	49	2	8 37	8 58	9 2	8 44 5 57

AUGUST hath xxxi Days.

M Sun's
D Declin.

Full Moon 3 Day 50 min. past 1 in the Morn.
Last Quarter 11 Day 9 min. past 6 in the Morn.
New Moon 18 Day 8 min. past 8 in the Morn
First Quarter 24 Day 12 min. past 11 at Night.

1 18N 12
6 16 59
11 15 13
16 13 40
21 12 2
26 10 20

1 Th	Lammis-day.	2 M	45	11 A	1
2 F	Maudlin Hill, Ham. Newark. Ickleton	3	46	11	40
3 S	Darventry. [Camb.	4	Rise	Morn.	
4 F	8 S. after Trinity. Bicester, Oxf. 5.	7 A	55	0	35
5 M	Abingdon, Berks. Thrapston, Northam.	8	20	1	20
6 Tu	Transf. of our Lord. (Boston, Lin. 5	8	42	2	5
7 W	Name of Jesus. 4. 5, 6, Ravenglas.	9	3	2	47
8 Th	This Month we have [Cumb	9	26	3	30
9 F	reason to expect (at least hope for)	9	51	4	12
10 S	St. Laur. Arch. D. of R. & M.	10	20	4	56
11 F	9 Sunday after Trinity.	10	55	5	41
12 M	Old Lammis. Loughborough, Leic.	11	34	6	29
13 Tu	good seasonable	Morn.	7	21	
14 W	Weather for the Harvest; and	0	22	8	15
15 Th	Ofwestry, Salop.	1	17	9	10
16 F	Day 14. hours and half long.	2	23	10	6
17 S	☉ due E 6 h. 40'. Alt. 12° 36'.	3	38	11	3
18 F	10 Sunday after Trinity.	4	Sets	0 A	2
19 M	☉ Amplitude North 16° 40'.	7 A	30	1	c
20 Tu	if it be not so good as	7	56	1	55
21 W	Rugby, Horncastle.	8	28	2	50
22 Th	Day decreas'd 2 hours 3 quarters.	9	0	3	45
23 F	some People wish for, let them Fast.	9	36	4	39
24 S	St. BART. Ap. & Mart. Ashby-de-la-	10	17	5	32
25 F	11 Sunday after Trinity. [Zouch.	11	0	6	28
26 M	hope for better,	11	50	7	19
27 Tu	now and to the End.	Morn.	8	12	
28 W	S. Au. B. of Hip. C. D.	0	45	9	2
29 Th	Beheading of JOHN Bap.	1	44	9	51
30 F	☉ due E. 6h. 30'. Alt. 12° 27'.	2	47	10	38
31 S	Day 13 ho 54 min. long.	3	50	11	25

A D	☉ Rise	☉ Set	h Sets	h Sets	♂ Sets	♀ Sets	♂ Sets	♀ Sets	W. fast							
1	4	20	7	40	2 M	2	8 A	16	8 A	42	8 A	50	8 A	22	5	47
6	4	27	7	32	1	41	1	59	8	28	3	40	8	c	5	21
1	4	35	7	24	1	20	7	42	8	13	3	30	7	32	4	40
6	4	44	7	16	1	c	1	25	8	c	3	20	7	15	3	48
	4	53	7	7	0	41	Rises	7	4	3	86	44	2	40		
15	4	26	57	0	22	M	45	7	3	1	57	Rises	1	20		

SEPTEMBER hath xxx Days.

M Sun's
D Decli

Full Moon 1 Day 50 min. past 4 in the Afternoon.
Last Quarter 9 Day 40 min. past 8 at Night.
New Moon 16 Day 24 min. past 4 in the Afternoon.
First Quarter 23 Day 18 min. past 9 in the Morning.

1 8N
6 6 1
13 4 1
16 2 3
21 1
26 1 2

1 F	12 Sunday after Trinity.	☾ Rises	Morn
2 M	Now, in all likelihood we shall	6 A 58	0
3 Tu	☉ Amplitude North 13 degrees.	7 16	0 5
4 W	Old Bar. <i>Warwick. Brigstock, North.</i>	7 37	1 9
5 Th	<i>Ware, Hertf. Chipping-Norton, Oxt.</i>	8 2	2 1
6 F	Days decreas'd 3 hours 27 minutes.	8 30	3
7 S	Dog-days end. <i>Enuchus B. of Or.</i>	9 4	3 4
8 F	13 S. after Trin. Nat. of B.V. Mary.	9 38	4 3
9 M	<i>have foggy Mornings (Wirksworth)</i>	10 21	5 2
10 Tu	<i>succeeded by fine drying</i>	11 12	6 1
11 W	Day 12 hours 3 quarters long	Morn.	7
12 Th	<i>weather for Harvest (St. Giles Hill,</i>	0 10	8
13 F	LONDON bur. A.D. 1666 [Hamp.	1 22	8 53
14 S	Holy Cross Day. <i>Woburn, Bedf.</i>	2 35	9 52
15 F	14 Sunday after Trinity.	3 55	10 48
16 M	☉ Eclips'd invisible.	☾ Sets	11 45
17 Tu	Lambert, Bish. & M.	6 A 33	0 A 43
18 W	Ember Week. <i>Sturbridge.</i>	7 5	1 39
19 Th	<i>Abingdon, Ber. Steying, Dor. Waltham</i>	7 40	2 36
20 F	<i>Good Weather still, and to the end Faj.</i>	8 19	3 33
21 S	St. MAT. Ap. Ev. & Mart. <i>Silfoe, Bedf.</i>	9 3	4 29
22 F	15 Sunday after Trinity.	9 52	5 24
23 M	☉ 4h. 18' 40" Mor. Equ. D. & N	10 49	6 18
24 Tu	in all habitable Parts of the Earth.	11 48	7 9
25 W	<i>Denbeigh. Shroton. Dorsetsh.</i>	Morn.	7 58
26 Th	☿ Cyprian Arch. of Carth. & M	0 40	8 45
27 F	<i>Derby, lasts 3 Days.</i>	1 52	9 30
28 S	<i>Tuxford, Nottinghamsh.</i>	2 54	10 11
29 F	16 S. after Tr. St. MICH. All Ang.	3 57	10 58
30 M	☿ Jer. P. C. & D. <i>Maidenhead, Ber.</i>	5	11 41

M D	☉ Rises	☉ Sets	☾ Sets	☿ Rises	♂ Sets	♀ Sets	☿ Rises	W. slow.
1	5 15	6 44	11 A 57	4 M 30	7 A 18	7 A 46	3 M 57	0' 25"
6	5 30	6 30	11 37	4 18	7 57	37 1	43	2 0
11	5 35	6 19	11 18	4 6	52 7	28 3	51	3 41
16	5 46	6 14	11 0	3 54	5 39	7 8	4	5 27
21	5 53	6 6	10 43	3 42	6 26	7 10	4	7 10
26	6 3	5 56	10 26	3 30	6 12	7 25	4	8 0

OCTOBER hath xxxi Days.

M Sun's
D Declin.

Full Moon	1 Day 3 min after 10 in the Morning.	6	3	S	20
Last Quarter	9 Day a quarter past 9 in the Morning.	1	5		17
New Moon	16 Day half an hour past 1 in the Morning.	11	7		11
First Quarter	22 Day 21 min. past 11 at Night.	16	9		3
Full Moon	31 Day 11 min. past 4 in the morning.	21	10		50
		26	12		36

1	Remi. B. of Rhemes. D Ecl. inv.	D Rises	Morn.
2	Botting. GOOSE FAIR. Old St Mat.	6 A 18	0 25
3	Peterborough, begins 2d. holds 3 D.	6 43	1 8
4	Kettering, North. 3d. Derby.	7 13	1 52
5	Days 11 hours Night 13 ho. long.	7 48	2 40
6	17 Sunday after Trinity.	8 28	3 26
7	Abingdon, Berks.	9 15	4 15
8	Pretty favourable for the presents,	10 10	5 6
9	St. Denys Arcop. B. and M.	11 12	5 58
10	Mansfield Old Mich. Day. Leicester	Morn.	6 52
11	(10 Steyning, Suff.	0 22	7 45
12	Days decreas'd 6 ho. 5 minutes.	1 37	8 41
13	18 Sunday after Trinity.	2 58	9 35
14	Day break 40 min. after 4.	4 18	10 30
15	but we may soon expect	5 35	11 26
16	☉ Ecl. invisible.	☉ Sets	0 A 27
17	Etheldred, Virg.	6 A 20	1 26
18	St. Luke the Evangelist.	7 0	2 23
19	Market Harborough.	7 52	3 20
20	19 Sunday after Trinity.	8 45	4 16
21	Day breaks at 5.	9 48	5 9
22	K. GEO. II. Cr. 1727. Newport Pagn	10 51	6 0
23	to have Winter upon us, with	11 53	6 49
24	Leighton-Buzz. Bedford.	Morn	7 35
25	Trippin Mart.	0 54	8 19
26		Fall	1 56
27	20 Sunday after Trinity.	2 58	9 45
28	St. SIM. & St. JUDE A. & M. Bingham	4 11	10 30
29	Picasley, Nott. Towcester, North. Of.	5 51	11 11
30	Day 9 hours 36 min. long. [westry]	6 7	11 50
31	Th cold Winds, Rain, Snow, Frost, &c.	Rises.	Morn.

W. F.	☉ Rises	☉ Sets	☾ Sets	☿ Rises	♂ Sets	♀ Sets	☿ Rises	W. flow.
1	6	12 5	47	10 A 8 3 M 18	5 A	16 A 5	5 M 50	10 38
6	5	22 5	37 9	50 3	5 5	49 6	48 6	21 12 0
11	5	32 5	27 9	33 2	5 5	36 6	44	11 20
16	5	42 5	17 9	13 2	40 5	22 6	39 5	14 30
21	5	51 5	8 8	58 2	2 5	10 6	37 5	27 15 40
26	7	0 5	0 8	40 2	1 5	58 6	36 5	16 15 46

M	Sun's
D	Declin.

I	14	S	30
6	16		9
II	17		35
16	18		53
21	20		4
26	21		4

54	0	M
28	1	
15	2	
6	3	
2	3	
12	4	
24	5	
orn.	6	
37	7	
52	8	
10	9	
33	10	
12	11	
Sets	0	A
38	1	
30	2	
27	2	
31	3	
36	4	
40	5	
44	6	
orn.	6	
48	7	
50	8	
52	9	
54	9	
56	10	
57	11	
Lifes	0	Mori
A	5	

Sets.	W. lbs.
1	16'
8	16
7	15
7	14
6	1
5	

DECEMBER hath xxxi Days.

M|Sun's
D|Declin.

1st Quarter 7 Day at 5 in the Morning.

New Moon 13 Day half past 11 at Night.

1st Quarter 21 Day 12 min. past 2 Afternoon.

Full Moon 29 Day 10 min. past 1 in the Aftern.

1	21	S	55
6	22		36
11	23		5
16	23		23
21	23		29
26	23		23

1	A	Advent Sunday.	5	A	56	0	M	58
2	M	<i>There being but few Fairs</i>	6	54	1			49
3	Tu	<i>in this Month, is probably</i>	8	0	2			42
4	W	<i>owing to the Foulness of the</i>	9	7	3			33
5	Th	<i>Weather, &c. which in general</i>	10	18	4			25
6	F	Epistol. Bish. of Myra in Licia.	11	30	5			17
7	S	Days decreas'd 9 hours 12 min.	Morn.		6			8
8	A	2 Sunday in Advent.	0	45	7			0
9	M	Newark, upon Trent.	2	4	7			52
10	Tu	<i>about this time of the Year makes</i>	3	22	8			44
11	W	OldSr. Andrew. Abing. Ber Baldock	4	40	9			38
12	Th	Day 7 hours 32 minutes long.	5	53	10			35
13	F	Lucy Virgin and Mart.	D Sets		11			32
14	S	<i>it very uncomfortable Travelling</i>	5	A	0	0	A	31
15	A	3 Sunday in Advent.	6	0	1			26
16	M	Epiphania.	7	5	2			19
17	T	Days decreas'd, 9 hours 25 min.	8	10	3			8
18	W	Ember Week.	9	16	3			56
19	Th	Day breaks, and Twilight ends at 6	10	21	4			41
20	F	Day 7 hours 16 minutes long. <i>Fast</i>	11	25	5			24
21	S	St. THO. A. & M. ☉ 8h. 10' 40" M	Morn.		6			5
22	A	4 Sunday in Advent. shortest Day.	0	26	6			47
23	M	Newport Pagnel, always 22d.	1	26	7			29
24	Tu	Greatest Dec. of Days 9h. 25 m. <i>Fast</i>	2	28	8			13
25	W	CHRISTMAS DAY	3	30	8			59
26	Th	St. STEPHEN Proto-Martyr.	4	33	9			45
27	F	St. JOHN Ap. and Evangelist.	5	32	10			36
28	S	Innocents Day, Herod's Murd. Infa.	6	31	11			27
29	A	1 Sunday after Christmas.	D Rises		Morn.			
30	M	<i>Christmas Weather to the End.</i>	5	A	32	0		21
31	Tu	Silvester. Bishop of Rome.	6	38	1			15

L	☉ Rise	☉ Set	☿ Sets	♂ Rise	♂ Rise	♀ Sets	♀ Sets	W. & W.
7	57	4	3	6	A	29	0	M 14
8	13	59	6	5	11	A	5	1
9	13	55	5	5	11			32
10	23	53	5	3	11			12
11	33	52	5	1	10			50
12	7	53	4	5	10			28
13	57	4	3	6	A	29	0	M 14
14	13	59	6	5	11	A	5	1
15	13	55	5	5	11			32
16	23	53	5	3	11			12
17	33	52	5	1	10			50
18	7	53	4	5	10			28
19	57	4	3	6	A	29	0	M 14

A TABLE of all the Kings and Queens of Eng- land since the Conquest,

The Year of the Birth of each King and Queen; also the Year, Month, and Day, whereon they began to reign: beginning the Year the first Day of January, 1754.				The Length of each Reign.			The Years expired since each Reign be- gan and ended.	
Names.	Born.	Began to Reign.	Y. M. D.	Beg.	End.			
William Conq.	1027	1066 October 14	20 10 26	688	667			
William Rufus	1057	1087 Septem. 9	12 10 24	667	654			
Henry I.	1058	1100 August 2	35 4 C	654	619			
Stephen	1105	1135 Decem. 1	18 10 24	619	600			
Henry II.	1134	1154 October 25	34 8 11	600	565			
Richard I.	1156	1189 July 6	9 9 C	565	555			
John	1166	1199 April 6	17 6 13	555	538			
Henry III.	1207	1216 October 19	56 1 0	538	482			
Edward I.	1239	1272 Novem. 16	34 7 21	482	447			
Edward II.	1284	1307 July 7	19 6 13	447	427			
Edward III.	1312	1327 January 20	50 5 1	427	377			
Richard II.	1366	1377 June 21	22 3 8	377	355			
Henry IV.	1367	1399 Septem. 29	13 5 21	355	341			
Henry V.	1389	1413 March 20	9 5 11	341	332			
Henry VI.	1421	1422 August 31	38 6 4	332	293			
Edward IV.	1442	1461 March 4	22 1 5	293	271			
Edward V.	1471	1483 April 9	0 2 13	271	271			
Richard III.	1443	1483 June 22	2 2 0	271	269			
Henry VII.	1457	1485 August 22	23 8 C	269	244			
Henry VIII.	1492	1509 April 22	37 9 6	245	207			
Edward VI.	1537	1547 January 28	6 5 8	207	201			
Mary I.	1516	1553 July 6	5 4 11	201	196			
Elizabeth	1533	1558 Novem. 17	44 4 7	196	151			
James I.	1566	1603 March 24	22 0 3	151	129			
Charles I.	1600	1625 March 27	23 10 3	129	105			
Charles II.	1630	1649 January 30	36 0 7	105	69			
James II.	1633	1685 February 6	4 0 7	69	65			
{ Mary II.	1662	1689 Feb. 13	5 10 15	65	60			
{ William III.	1650		13 0 23	65	52			
Anne	1665	1702 March 8	12 4 24	52	40			
George I.	1660	1714 August 1	12 10 10	40	27			
George II.	1683	1727 June 11	whom God preserve.					

A Compendious TABLE of INTEREST,
 shewing the Interest of any Sum of Money, from a Million
 to a Pound; for any Number of Days, at any Rate of
 Interest.

No.	l.	s.	d.	q.	No.	l.	s.	d.	q.
1000000—	2739	14	6	0,99	1000—	2	14	9	2,14
900000—	2465	15	0	3,29	900—	2	9	3	3,12
800000—	2191	15	7	1,59	800—	2	3	10	0,11
700000—	1917	16	1	3,89	700—	1	18	4	1,10
600000—	1643	16	8	2,19	600—	1	12	10	2,80
500000—	1369	17	3	0,49	500—	1	7	5	3,70
400000—	1095	17	9	2,79	400—	1	1	11	0,50
300000—	821	18	4	1,09	300—	0	16	5	1,40
200000—	547	18	10	3,40	200—	0	10	11	2,30
100000—	273	19	5	1,70	100—	0	5	5	3,01
90000—	246	11	6	0,32	90—	0	4	11	0,71
80000—	219	3	6	0,96	80—	0	4	4	2,41
70000—	191	15	7	1,59	70—	0	3	10	0,11
60000—	164	7	8	0,22	60—	0	3	3	1,81
50000—	136	19	8	2,85	50—	0	2	8	3,51
40000—	109	11	9	1,48	40—	0	2	2	1,21
30000—	84	3	10	0,11	30—	0	1	7	0,90
20000—	54	15	10	2,74	20—	0	1	1	0,60
10000—	27	7	11	1,37	10—	0	0	6	2,30
9000—	24	13	1	3,23	9—	0	0	5	3,67
8000—	21	18	4	1,10	8—	0	0	5	1,40
7000—	19	3	6	2,96	7—	0	0	4	2,41
6000—	16	8	9	0,82	6—	0	0	3	3,76
5000—	13	13	11	2,58	5—	0	0	3	1,15
4000—	10	19	2	0,55	4—	0	0	2	2,52
3000—	8	4	4	2,41	3—	0	0	1	3,80
2000—	5	9	7	0,27	2—	0	0	1	1,26
1000—	2	14	9	2,14	1—	0	0	0	2,63

R U I. E.

Multiply the Sum by the Number of Days; and that Product by the Rate per Cent. Then cut off the two last Figures to the right Hand, and the rest you must find in the Table.

Example, What is the Interest of 100 l. for 365 Days at 5 per Cent

N^o. of Days 365

multiply by 100

Product 36500

multiply by 5 Rate p. Cent.

1825100

Then in the Table

against 1000 is 2 14 9 2,14

800 2 3 10 0,11

20 0 1 1 0,60

5 0 0 3 1,15

Ans^r 5 0 0 0 0,00

Of the Eclipses in the Year 1754. 17

THERE will be in this Year Six Eclipses, but all invisible to this Part of the Globe, *viz.* Four of the SUN and Two of the MOON; in the following Order.

The First of the SUN, the 23d Day of *March*, at 10 P. M. the Sun in *Aries* 3° 13'.

Second of the MOON, *April* 7, visible and total at *Jamaica*; and will begin there at 54 Min. past Midnight, the Middle 36 Min. past 2 in the Morn, and ends 18 Min. past 4.

Third of the SUN, *April* 22, at 45 Min. past 1 Afternoon, Sun in *Taurus* 2° 9'.

Fourth of the SUN, *Sept.* 16. at 46 Min. past 4 Afternoon, Sun in *Virgo* 23° 30'.

Fifth of the MOON, *October* 1, visible at *Jamaica*, and total; begins 28 Min. past 3 Morn. Middle 26 Min. past 5, and sets Eclipsed.

Sixth of the SUN, *October* 16, at 32 Min. past 1 in the Morning, Sun in *Libra* 22° 35'.

T. C. Writing-master, in *Tinker's Close*, near the *Fort Mill Hill*.

IN the Year 1754, will be Six Eclipses, *viz.* Four of the SUN, and Two of the MOON; but none of them visible to the Inhabitants of *Great Britain*; tho' Mr. Leadbetter has made both those of the MOON visible in his *Compleat System of Astronomy*; which is as gross an Absurdity as his Geometrical Construction of a Solar Eclipse, so erroneously copied from Mr. *Flamsteed*, and publish'd in the latter end of his *First Vol. of the System aforesaid*. These Two Lunar Eclipses however, perhaps may not be thought altogether unworthy the Notice of the Curious, in *America*; on which Account you have the following Calculation of Both, for *Port Royal in Jamaica*.

		D. H. "		
Apparent Time at Port Royal of the	Beginning Anno 1754, April	6	12	53 07
	Beginning total Darkness		13	49 56
	Ecliptic 8		14	38 36
	Middle		14	38 54
	End of total Darkness		15	27 52
	End of the Eclipse		16	24 41
	Duration of total Darkness		01	37 56
	Total Duration of the Eclipse		03	31 14
	Digits Eclipsed		21	41 24
	Moon's true Latitude		S. D.	01 54

The Second will fall on *October* 1; and the Inhabitants of *Port Royal* will perceive the MOON to set when about half of her Diameter is obscured by the *Earth's Shadow*.

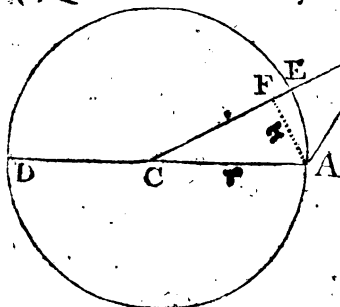
18 Of the Eclipses in the Year 1754.

Apparent Time at P. M. Royal of the	{			H.
		Beginning, Anno 1754, April 30	_____	14 58 46
		Beginning total Darkness	_____	16 04 18
		Ecliptic 8	_____	16 56 26
		Middle	_____	16 56 48
		End of total Darkness	_____	17 49 18
		End of the Eclipse	_____	18 54 50
		Duration of total Darkness	_____	1 45 00
		Total Duration of the Eclipse	_____	3 56 04
		Digits eclipsed	_____	21 01 25
		Moon's true Lat.	_____	S. D. 1 31

Harland Widd.

Answers to the Mathematical Questions in 1753.

(1) Question 121. answer'd by *Harland Widd*, the Proposer.



BH E first observer, that this *Question* was proposed by the *Provost* of *Dunbar*, when the *Town Mills* were building; in order to place *AB* on the *Bucket Wheel* so as to carry the greatest Quantity of Water to the Horizontal Position.

Let fall the Perpendicular *AF*, for which put x ; also let $r = AC$. and $b = AB$; Then (per 47 E. 1.) $\sqrt{rr - xx} = CF$, and $\sqrt{bb - xx} = BF$; whence $\sqrt{rr - xx} + \sqrt{bb - xx} = BC$, which multiply'd by $\frac{x}{2} =$ half *AF*, gives the Area of the $\triangle ABC = \frac{x}{2} \sqrt{rr - xx} + \frac{x}{2} \sqrt{bb - xx}$. The Fluxion of which is $\frac{rx\dot{x} - 2x^2\dot{x}}{2\sqrt{rr - xx} - x^2} + \frac{bx\dot{x} - 2x^2\dot{x}}{2\sqrt{bb - xx}}$. Now the Square of the Fluxion of *AF*, being $\dot{x}^2$, and of *CF*, $\frac{-x^2\dot{x}^2}{rr - xx}$; the square Root of their Sum is $\frac{\sqrt{rr - xx}}{\sqrt{rr - xx}} =$ the Fluxion of the Arch *AE*, which being multiply'd by half *AC* $= \frac{r}{2}$ gives $\frac{rx\dot{x}}{2\sqrt{rr - xx}} =$ the Fluxion of the Area of the Sector *ACE*; but by the Nature of

20 Questions in last Year's Diary answer'd.

The same answer'd by Mr. *William Enefer*.

Let the two given Lines be to each other as 1 to a ; then $AC = 1$, $AB = a$: Put $x = \text{Sine } \angle ACB$, then its Cosine $= \sqrt{1-x^2}$, and (by *Emmerson's Trig. Prop. xi. pag. 25.*)

$\frac{\dot{x}}{\sqrt{1-x^2}}$ = the Fluxion of the Arch AE; which, by the Nature of the Circle is also the Fluxion of the Sector CAE,

by Trigon. $a : x :: 1 : \frac{x}{a} = \text{Sine } \angle B$, then $\sqrt{1 - \frac{xx}{aa}}$ = its

Cosine, and $x\sqrt{1 - \frac{xx}{aa}} + \frac{x}{a}\sqrt{1-xx} = \text{Sine } \angle BAC$,

which multiply'd by a gives $x\sqrt{a^2-x^2} + x\sqrt{1-x^2} =$ double the Area of the Triangle ABC, whose Fluxion is $\frac{a^2x\dot{x} - 2x^3\dot{x}}{\sqrt{a^2-x^2}} + \frac{xx\dot{x} - 2x^3\dot{x}}{\sqrt{1-x^2}}$, which by the Nature of the

Problem must be $= \frac{\dot{x}}{\sqrt{1-x^2}}$ the Fluxion of the Sector, divide by $\dot{x}$, and transpose the Equation and $\frac{a^2-x^2}{\sqrt{a^2-x^2}} = \frac{2x^2}{\sqrt{1-x^2}}$

which brought out of Fractions and properly ordered will be

$4x^4 - a^4 - 4a^2 \times x^2 = -a^4$: or (putting $\frac{a^4+4a^2}{4} = 2m$,

and $\frac{a^4}{4} = n$) $x^4 - 2mx^2 = -n$, then $x = \sqrt{m + \sqrt{m^2 - n}}$.

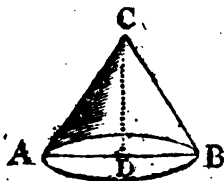
W W. D.

Mr. Wm. Cottam, Mr. Wm. Kingston, Mr. Tho. Moss, Mr. Sam. Bamfield, Mr. Ben. Donn, Mr. Tho. Garrard, and others, have sol'd this Quest. but Room will not admit,

(2) Quest. 122. answer'd by Mr. *W. Bevil*.

Let x and $y = \text{Sine and Cosine } \angle A$, $b = 1,570796$. Then per Trigon. $x : 4 :: 1 : \frac{4}{x} = AC$, $x : 4 :: y : \frac{4y}{x} = AD$, and $\frac{32by}{x^2}$

= the convex Surface of the Glass, which per Quest. $= 64by^2$ twice the Area of the Brim. Whence $y = \frac{1}{2} = 30^\circ = \angle ACD$; hence 22,24 = its Content.



Again. Let $p = 3.1416$, $b = 12 =$ Deph of the Bowl, and for Diam: at Brim put 27; then (by *Emerson's Fluxions, p. 202.*) we have the convex Surface

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Surface $= \frac{p}{6a} \times a^2 + 4y^2 \frac{3}{2} - \frac{pa^2}{6} = 2py^2$ per Quest. and $y^2 = ab$ (by the Nature of the Curve) which being put for y^2 , and the whole divided by $\frac{p}{6}$ we have $\frac{a^2 + 4ab \frac{3}{2}}{a} - a^2 = 12ab$.

From which we get $3a^2 + 24ab = 16b^2$, Solv'd $a = 7.425625$, and $y = 9.4396$. Hence the Content of the Bowl $= 1679.6407$, out of which the Glas may be fill'd 75.184 Times.

The same answer'd by Mr. Tho. Garrard.

Put $c = 12$ the given Depth of the Bowl, $p = 3.1416$ (the Circumference of a Circle whose Diameter is Unity) $\times$ any variable Abscissa, and y its corresponding Semi Ordinate :

Then by the Nature of the Parabola $ax = y^2$, $2py \sqrt{a^2 + 4y^2} =$ the Fluxion of the concave Surface of the Bowl ; whose

Fluent corrected is $\frac{p}{6a} \times a^2 + 4y^2 \frac{3}{2} - \frac{pa^2}{6}$, which when

x becomes $= c$ and $y^2 = ca$ is $\frac{p}{6a} \times a^2 + 4ca \frac{3}{2} - \frac{pa^2}{6}$ the

concave Surface of the whole Bowl $= 2pac$ the double

Area of the Base or Brim $\therefore a^2 + 4ac \frac{3}{2} = a^2 + 12ca$, which being involved and the Terms contracted &c. gives

$a^2 + 8ca = 5^2 cc \therefore a = c\sqrt{21\frac{1}{3}} - 4$, and $\frac{pac}{2} = pc\sqrt{5\frac{1}{3}} - 2$, the Solidity of the Bowl.

Now put $n = 4$, the given Depth of the conical Glas, and $v =$ the Diameter of its Brim ; then will $pv \sqrt{n^2 + v^2}$ be the concave Surface of the Glas, and $2pvv =$ the Double Area of its Brim $\therefore \sqrt{nn + vv} = 2v$ and $v = n\sqrt{\frac{n}{3}}$ and $\frac{pv^3}{9}$ is the Solidity of the Glas. Consequently $\frac{9c^3}{n^3} \times \sqrt{5\frac{1}{3}} - 2 = 75.18439$ the Number of Glasses that will fill the Bowl.

The same answer'd by Mr Edw. Crafts.

Put $2a =$ Latus Rectum, $x =$ Abscissa, $y =$ Ordinate of the Parabola, $p = 3.1416$, $d = 12$, then $\frac{2p}{3a} \times y^2 + a^2 \frac{3}{2} - \frac{2pa^2}{3} =$ the Conoid's Surface (see p. 202. of Mr. Emerson's Fluxions) $\therefore \frac{2p}{3a} \times y^2 + a^2 \frac{3}{2} - \frac{2pa^2}{3} = 2py^2$ per Quest. Then

22 Questions in last Year's Diary answer'd.

by Reduction, and putting $2ad$ for y^2 , we have $4ad = 3a^2 + 12ad$, Solv'd $a = 3,7128$, $y = 9,4396$, then $\frac{dpy^2}{2} = 1679,6352$ the solid Content of the Conoid.

Again, For the conical Glass put $2y =$ the Diam. $n = 4$. we have $py\sqrt{n^2 + y^2} = 2py^2$. Reduc'd $y^2 = \frac{n^2}{3} = 5,3333$. Hence $22,34 =$ the solid Content of the conical Glass. Therefore $75,185$ is the Number of Times the Glass may be fill'd out of the Punch-bowl.

The same answer'd by Mr. Paul Sharp.

Put $b = 4$, $c = 3,1416$, and $2y =$ the internal Diam. of the Glass sought; then will $cy\sqrt{b^2 + y^2} = 2cy^2$ per Quest. Therefore $b^2 + y^2 = 4y^2$, and $y = \frac{b}{\sqrt{3}} = 2,30942$ Inches, and consequently the Content of the Glass is $22,34024$ cylindric Inches. Secondly, Let $a = 12$, $c = 3,1416$ as before, and $2x =$ the internal Diam. of the Bowl sought; then per Conics $\frac{x^2}{a} =$ the Parameter; and by the Doctrine of Fluxions we have the concave Surface $= \frac{ac}{6x^2} \times \frac{x^4 + 4a^2x^2}{a^2}^{\frac{3}{2}} - \frac{cx^4}{6a^2} = 2cx^2$ (per Qu.) $\therefore \frac{x^4 + 4a^2x^2}{a^2}^{\frac{3}{2}} = \frac{12a^2x^4 + x^6}{a^3}$, which squared and reduced gives $x^4 + 8a^2x^2 = 5\frac{1}{3}a^4$; whence $x^2 = \frac{8a^2}{\sqrt{3}} - 4a^2 = ,6188a^2 = 89,1072 \therefore x = a\sqrt{,6188} = 9,4396$ Inches, the Radius of the Bowl sought, and the Solidity $= 1679,635077$ cylind. Inches, which divided by the above Content of the Glass, gives $75,18428$ the Number of Glasses required.

The same answer'd by Tabularius.

Let $c = 3,1416$, $d =$ Depth of the Glass. $x =$ the Radius of its Brim within; then the Area of the Brim $= cx^2$, and the internal Surface $= cx\sqrt{d^2 + x^2} = 2cx^2$, by the Quest. whence $x = \frac{d}{\sqrt{3}}$, and thence the Content of the Glass $= \frac{cd^2}{3} \times \frac{d}{3} = \frac{cd^3}{9}$. Again, Put $b =$ the Depth of the Bowl, $v =$ the Diam. of the generating Parabola: Then will $bcv =$ Area of the Brim, and

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and the internal Surface $= \frac{c}{6v} \times v^3 + 4bv^2 - \frac{c v^2}{6} = 2bcv$

by the Question $\therefore v^3 + 12bv^2 = v^2 + 4bv^2$; whence by In-
volution and Reduction $v^2 + 8bv = \frac{64b^2}{12}$, and thence $v = \frac{8b}{\sqrt{3}}$
 $- 4b$. Hence the Content of the Bowl $= \frac{b^3 c}{\sqrt{3}} \times 4 - 2 \sqrt{3} \frac{b^3 c}{3}$
 $\therefore \frac{b^3 \times 26 - 18\sqrt{3}}{d^3 \sqrt{3}}$ expresses the Number or Times requir'd.

The same answer'd by Mr. *Edw. Rogers*.

Let $n = 4$ = Depth of the Glass, $p = 3.1416$, and x = the
Semidiam. of its Brim, then will $x\sqrt{n^2 + x^2} = 2x^2$, $\therefore x =$
 $\frac{n}{\sqrt{3}} = 2.3094$, and the Content is 22 34015 Cubic Inches.

Put d = the Depth of the Punch Bowl = 12, and y = its
Semidiam. then py^2 = Area of the Brim, and (by *Robert-*
son's Mensuration, v. 293) the internal concave Surface is

$$\sqrt{4d^2 + y^2} + \frac{y^2}{\sqrt{4d^2 + y^2}} + y \frac{2py}{3} = 2py^2 \text{ (by the Quest)}$$

this Equation properly reduced gives $y = d\sqrt{\frac{x}{\sqrt{3}}} - 4 =$
9.4396; whence the Content is 1679,60908 Cubic Inches,
which divided by those contained in one Glass gives
75,18342 the Number of Glasses.

The same answer'd by Mr. *William Spicer*.

Put $d = 4$ Inches = Cone's Altitude, $c = 0.7854$, and x =
the Radius of the Cone's Base; then will $x^2 + d^2$ = flant the
Height: Th. $4x\sqrt{x^2 + d^2}$ = Curve Superficies. and $4cx^2$ =
Superficies of the Base; hence (by Qu.) $4cx\sqrt{x^2 + d^2} = 8cx^2$;
Solv'd $x = \frac{d}{\sqrt{3}} = 2.3094$, and $\frac{4cd^3}{9} = 22,340266$ Cubic
Inches = Cone's Solidity.

Again, Let $b = 12$ Inches = Conoid's Altitude. y = Rad.
of Base, and a = Parameter, then (per Nature of Curve $ba =$
 y^2 , and $4cba$ = Area of the Base; the Fluxion of the Curve
Surface is $\frac{8cy y \sqrt{a^2 + y^2}}{a}$ whose Fluent (when corrected) is

$$\frac{2c}{3a} \times \frac{a}{a^2 + 4y^2} \frac{2ca^2}{3}, \text{ or by putting } ba \text{ for } y^2, \text{ we have}$$

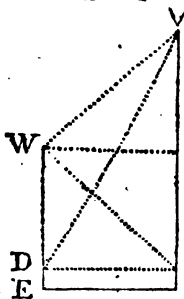
$$\frac{2c}{3a} \times \frac{a}{a^2 + 4ba} \frac{2ca^2}{3} = \text{Curve Surface. Theref}$$

24 Questions in last Year's Diary answer'd.

Quest.) $\frac{2c}{3a} \times a^2 + 4ba^{\frac{3}{2}} - \frac{2ca^2}{3} = 8bca$: Solv'd $a = \frac{8b}{\sqrt[3]{3}}$
 $-4b = 7.4256$, and $\sqrt{\frac{8b}{\sqrt[3]{3}} - 4b^2} = y = 9.4396$; hence $\frac{16b^{\frac{3}{2}}c}{\sqrt[3]{3}}$
 $- 8b^{\frac{3}{2}}c = 1679.63507712 = \text{Conoid's Solidity, and therefore}$
 $\frac{2.78116^3}{d^3} = 75.18447$ times the Glass may be fill'd in one Bowl.

Many more Solutions to this Question might have been exhibited from Mr Ben. Donn, Mr J. Watchorne, Mr Wm. Enefer, Mr John Wiggleworth, Mr Wm. Kingstone, Mr Rich. Gibbons, Mr Robt. Butler, Mr John Woolley, Jack Careless, Mr Sam. Bamfield, Mr J. Holden, &c. but we have already been too prolix.

(3) Question 123. answered by *Nummularius*.



For DW = 30 Feet put a , for the Tang^t of the Angle BWV = $56^\circ 19'$ put t , and for DB = WC put x ; then (per plain Trig.) $x : 1 :: a : \frac{a}{x} = \text{Tang.} <$

CDBW = <BWC; and $\frac{x}{a} = \text{its Cot.} = \text{Tang}^t <BWD = <CBW$; and (per Thacker's Miscell. Theo. vii. and viii. p.4.)

we have $\frac{tx-a}{a1+x} = \text{Tang. of CVW} = \text{Tang. of BVD (per Quest.) also } \frac{at+x}{tx-a} \text{ its Cot.} = \text{Tang. of CVW} = \text{BDV. Then per Trigonom. } \frac{tx-a}{at+x} : x :: 1 : \frac{atx+xx}{tx-a} = \text{BV, and } \frac{at+x}{tx-a} : x :: 1 : \frac{tx^2-ax}{at+x} = \text{VC.}$

But VC + BC = BV (per Fig.) that is $\frac{tx^2-ax}{at+x} + a = \frac{atx+xx}{tx-a}$; this Equation properly reduced will become $x^3 - \frac{3at}{t^2-1} \times x^2 = \frac{a^3t}{t^2-1}$; which in Numbers is $x^3 - 107.9252x^2 = 32277.5575$; this solv'd gives $x = 110.5563$, and consequently the Height of the Maypole = 131.54. = AV.

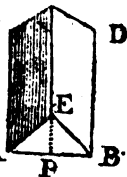
N. B. This is the only true Solution received to this Quest. it being propos'd in such very ambiguous Terms, most of our Contributors have mis'd the Meaning of it. We desire that every future Question intended for our *Diary* may be intirely new, not taken from any printed Author, (except the Proposer has made some very great Improvement in the Solution) and propos'd in as clear and perspicuous a manner, as the Nature of the thing will admit: In order to which, we presume good plain Proof will

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will be thought by most of our ingenious Correspondents much preferable to Verse: for we imagine the Satisfaction but small when there is more Difficulty to find the *Data* in a Question, than to give a *Solution* after that is found; which too often has happen'd to be the Case.

(4) Question 124. answer'd by Mr. John Nichols.

Let $s = \text{Sine} \angle A = 60^\circ$, $m = \text{Sine} \angle B = 50^\circ$, $n = \text{Sine} \angle E = 70^\circ$, $a = 100 = \text{Superficies}$, put $x = AB$, then (per Trigonometry we have) $n : x :: m : \frac{mx}{n} = AE$, $n : x :: s : \frac{sx}{n} = BE$, then $\frac{mx}{n} + \frac{sx}{n} + x = \text{the Perimeter A B of the Base}$; and (per Trig.) $1 : \frac{mx}{n} :: s : \frac{smx}{n} = EP$, then $\frac{smx^2}{n} = \text{Area of both Ends}$, and $a - \frac{smx^2}{n} = \text{Area of the three Faces}$, which being divided by the Perimeter of the End gives $\frac{an - smx^2}{m + s + n \times x} = \text{the Length AC} = BD$, which $\times$ 'd by $\frac{smx^2}{2n}$ the Area of the End, gives the Solidity $= \frac{ansmx - s^2m^2x^3}{m + s + n \times x}$ a Maximum, and in Fluxions $ansmx - 3s^2m^2x^2 = 0$, which gives $x = \sqrt[3]{\frac{an}{3sm}} = 6,871317 = AB$; whence the Solidity $= 59.0843$.



The same answer'd by Mr. Geo. Godhelp.

Let $ABDC$ be the Prism required, where the Angles at A , B , and E are 60° , 50° , and 70° respectively, whose Sines call b , a , and c ; put $x = AB$, and $y = AC$, the Length; then (per Trig.) $c : x :: a : \frac{ax}{c} = AE$, and $c : x :: b : \frac{bx}{c} = EB$, $\therefore \frac{axy}{2a} + \frac{bxy}{c} + xy + \frac{bax^2}{c} = 100 = d$. Reduced $y = \frac{dc - bax^2}{ax + bx + cx}$. Now $\frac{ba x^2}{2c} \times \frac{dc - bax^2}{a + b + c \times x} = \text{Solidity of the Prism a Max. whose Fluxion is } b a d c x - 3b^2 a^2 x^2 = 0$, $\therefore x = \sqrt[3]{\frac{dc}{3ba}} = 6,87134$. Th. $y = 3,545013 = AC$, $AE = 5,50165$, $BE = 6,33265$, and the Solidity $59,083795$.

26 Questions in last Year's Diary answer'd.

The same answer'd by Mr. T. C.

Let $ABDC$ (see the Fig. above) represent the Prism in which are given the Angle $A = 60^\circ = s$, the Angle $B = 50^\circ = n$, and Angle $E = 70^\circ = q$, the superficial Content $= 100$ call (a) Let $x = AB$ and $y = AC$ the Length of the Prism; then (per Trigon.) $\frac{nx}{q} = AE$, $\frac{sx}{q} = BE$; but $x \times s \times \frac{nx}{q} =$ the Sum of the Areas of the Ends, and $\frac{xy + xny + xys}{q} =$ the Area of the 3 Parallelograms $\therefore a - \frac{snx^2}{q} = xy + \frac{xny + xys}{q}$, which brought out of Fractions and reduc'd gives $y = \frac{qa - snx}{nx + sx + qx}$, which Expression multiply'd into $\frac{snx^2}{2q} =$ the Solidity of the Prism which is to be a *Maximum*; therefore $\frac{qa - snx}{nx + sx + qx} \times \frac{snx^2}{2q}$ thrown into Fluxions makes $aqsnx - 3s^2n^2x^2 = 0$, reduc'd $x = \sqrt{\frac{aq}{3sn}}$, which is $= 6,8713$, and $y = 3,5451$.

The same answer'd by Mr. Tho. Garrard.

Put a, b , and c for the Nat. Sines of $50^\circ, 60^\circ$, and 70° , the given Angles of the triangular Base of the Prism, and let ax, bx , and cx represent the Sides opposite to those Angles respectively; also let $d = 100$, the given Surface of the Prism: Then will $abcxx$ express the Area of both Bases, and $d - abcxx$ the Height of the Prism, also $\frac{abcxx \times d - abcxx}{2x \times a + b + c} =$ the Solidity which by the Quest. is a *Maximum* $\therefore dx - 3abcx^2 = 0$, $\therefore xx = \frac{d}{3abc}$, which being wrote for xx in the Expression for the Solidity it will become $\frac{d}{a + b + c} \times \sqrt{\frac{dabc}{27}} = 59,08436 =$ the Solidity of the Prism required.

The same answer'd by Mr. J. Holden.

Let the Area of the Triangle whose Angles are $50^\circ, 60^\circ$, and 70° , and its greatest Side $= 1$ be called a , and its Perimeter b ; then the Area of any other Triangle whose Angles are the same, and its greatest Side $= x$ will be ax^2 , and its Perimeter $= bx$; and because the Superficies of a Prism is equal twice the Area of the End plus the Product of the Perimeter into

into the Length ($= 2a^2x + bx \times \text{Length}$) when the Superficies is given $= g$, the Length will $= \frac{g - 2ax^2}{bx}$, and the Solidity $= \text{the Area of the End} \times \text{the Length}$ will give $\frac{ga^2x}{b} - \frac{2a^2x^3}{b}$ whose Fluxion made $= 0$, gives $\frac{ga}{b} = \frac{ba^2x^2}{b}$; whence $x^2 = \frac{g}{6a}$, and the Solidity $\sqrt{\frac{g}{6a}} \times \frac{2ga}{36} = \frac{g}{36} \times \sqrt{\frac{2ga}{3}}$; but $g = 100$,

therefore $b = \frac{\text{Sin. } 50^\circ + \text{S. } 60^\circ + \text{S. } 70^\circ}{\text{S. } 70^\circ}$, and $a = \frac{\text{S. } 50^\circ \times \text{S. } 60^\circ}{\text{S. } 70^\circ}$, which gives the requir'd Solidity $= 59.08434$.

Corol. Hence the Solidity of any Prism of a given Surface will be greatest when the Area of its End is $= \frac{1}{2}$ of its whole Area.

The same answer'd by Mr. William Cottam, at his Grace the Duke of Norfolk's.

First let the Sines of the Angles be as the Figures and Letters denote, Rad. $= 1$, and $AB = x$;

then $r : x :: n : \frac{nx}{r} = AC$, and $r : A$

$x :: a : \frac{ax}{r} = BC$ $\therefore 1 : x :: a : ax$

$= BD$, and $\frac{na^2x^2}{r} = 2 \times \text{Area } ABC$; let $c = 100$, and $v =$

the Length of the Prism, then $\frac{n+a+r}{r} \times vx + \frac{na^2x^2}{r} = c$, $\therefore$

$v = \frac{cr - na^2x^2}{n+a+r \times x}$ and $\therefore \frac{na}{rx + a + n} \times \frac{crx - na^2x^3}{r} =$ to the

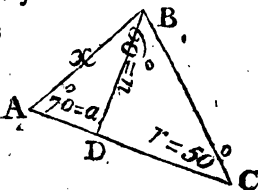
Solidity; and therefore $crx - na^2x^3$ is a Maximum whose

Fluxion is $x \times \frac{cr - 3na^2x^2}{r} = 0$, and $\therefore x = \sqrt{\frac{cr}{3na}} = 5.601545$, and the Solidity $= 59.0793$.

Mr Wm Bevil, Mr Rich. Mallock, Tabularius, Mr John Watchborne, Mr Jos. Scott, Mr Tho. Moss, Mr Paul Sharp, Mr Wm Wigglesworth, Mr Wm Kingstone, Mr Rob. Butler, Jack Careless, Mr Edw. Croft, Mr Sam. Bamfield, and others, have curiously solv'd this Question; but Room will not admit their Solutions at large, so that we shall conclude the Answers to this Question with the following

Solution by Mr. Richard Gibbons.

This Question was taken *verbatim* from one of your Supplements, as it was there propos'd by Mr John Ash.



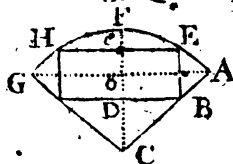
28 Questions answered in last Year's Diary.

whence it was transcrib'd and answer'd by Mr *Sams. Farrer*, in p. 38. of *Miscell. Curiosa Math.* vol. i. where he puts m, n , and p , = the Sines of the given Angles, x = the greatest Side of the triangular Base, and $s = 100$, the whole Surface.

And from thence very plainly brings $x \sqrt{\frac{sp}{3nm}}$ wh^{ch} in Numbers is 6.8731 ∴ Area of the Base $\frac{m x^2}{2p} = 16.6666$ &c. Height of the Prism $\frac{sp - m n x^2}{m x + n x + p x} = 3.14512$, and the Solidity = $\frac{m n x \times sp - m n x^3}{2p \times m + n + p} = 59.0854$ Feet, and not $\frac{a m \times o p x + n m x^3}{2p^2 + 2mp + 2p}$ as it is there infer'd by Mistake.

N. B. Several other of our Correspondents justly observe that such weak Practices (*viz.* transcribing Questions from other Authors) ought to be exposed.

(5) Quest. 125 answer'd by *Tabularius*.



Let $CA = CF = 15 = a$; and from the Solidity of the Sector, we get $Co = 12 = b$, $Ao = 9 = c$; and put the Radius of the Cylinder's Base = $BD = Ee = x$; then by the Property of the Circle $Ce = \sqrt{a^2 - x^2}$

$= \frac{bx}{c}$; and putting $3.1416 = m$, the Solidity of the Cylinder = $m x^2 \times \sqrt{a^2 - x^2} = \frac{bx}{c} \therefore x^2 \sqrt{a^2 - x^2} = \frac{bx^3}{c}$ is a *Max.* in Fluxions $\frac{2a^2 x \dot{x} - 3x^3 \dot{x}}{\sqrt{a^2 - x^2}} - \frac{3bx^2 \dot{x}}{c} = 0 \therefore c \times (2a^2 - 3x^2) = 3bx \sqrt{a^2 - x^2}$, whence by Involution and Reduction $x^4 - b^2 + \frac{4c^2}{3} x^2 + \frac{4a^2 c^2}{9} = 0$, where $3b^2 + 4c^2 = 3a^2 + c^2$, and $x = \frac{3a^2 + c^2 - b\sqrt{9a^2 - c^2}}{6} = 6.1496$, &c. hence $De = 5.482$, &c.

The same answer'd by Mr. *John Wigglesworth*.

Put the Rad. $AC = CF = 15 = r$, $1413.72 = s$, $0.5236 = p$, $oF = v$, and $DB = eE = x$ = half the Diameter of the greatest inscribed Cylinder, then the Solidity of the Sector $CGFAC = 4p^2 v = s$; therefore $v = \frac{s}{4p^2} = 3$, and $Co = r$

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$v=12$ which call a , likewise $Gc=Ao=\sqrt{r^2-x^2}=9$,
 which let $=b$; then by similar Triangles $b:a::x:\frac{ax}{b}=CD$,
 and (by 47 E. 1.) $\sqrt{r^2-x^2}=Cg$, therefore $\sqrt{r^2-x^2}-\frac{ax}{b}$
 $\frac{ax}{b}$ De the Length of the Cylinder, whence $3,1416x^2$
 $x\sqrt{r^2-x^2}-\frac{ax}{b}$ a Maximum, in Fluxions $\frac{2r^2xx-3x^3x}{\sqrt{r^2-x^2}}-\frac{3ax^2x}{b}=0$, and by Reduction $x^4-252x^2=-8100$;
 Solv'd $x=6,14966$; hence the Length $=5,48188$, and
 Solidity $=651,3032$.

The same answer'd by Mr Wm Kingstone.

Put $x=OF$, $a=CF=15$, $2c=,5236$, $3c=,7854$, $s=1413,72$; then $12acx^3-4cx^3$ the Solidity of the Segment of the Globe AGF; and $8a^2cx-12acx^2+4cx^3$ the Solidity of the Cone CAG; hence $8a^2cx=s$, $\therefore x=\frac{s}{8a^2c}=3$, $Ao=9$, and $Co=12$. Let $z=EH$, and by the Property of the Curve $\sqrt{a^2-\frac{z^2}{4}}=Ce$, and by similar Triangles $18:12::z:\frac{2z}{3}=CD$, and $DE=\sqrt{a^2-\frac{z^2}{4}}-\frac{2z}{3}$,
 $3c \times x^2 \sqrt{a^2-\frac{z^2}{4}}-\frac{2z^3}{3}$ the Solidity of the Cylinder, a Maximum, and in Fluxions is $\frac{8a^2zz-3z^3z}{2\sqrt{4a^2-z^2}}-2z^2z=0$,
 $\therefore 8a^2-3z^2=4z\sqrt{4a^2-z^2}$ $\therefore 64a^4-48a^2z^2+9z^4=64a^4z^2-16z^4$ $\therefore 25z^4-112a^2z^2=-64a^4$, and $z^4-\frac{112a^2z^2}{25}=\frac{-64a^4}{25}$. Solv'd $z=\frac{a\sqrt{56+\sqrt{15301}}}{25}=12,29664$,
 hence $De=5,48428$, and the Solidity $=651,30422$.

The same answer'd by Mr. Sam. Bamfield.

Put $r=15$ Sphere's Radius, $a=,7854$, and $x=Fo$; then $r-x=Co$; and (per prop. Circle) $\sqrt{2rx-x^2}=Ao=Go$, then (per Ward's Theor. xviii. p. 425.) $6rx^2-25x^3$ (s being $=,5236$) the Solidity of the Segment AOGFA, and by having the Cones, Base and Altitude, its Solidity $=\frac{8arrx-12arxx+4axxx}{3}$; reduced $471,24xx=141$

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hence $x = 3$: For the greatest Cylinder put $r =$ Radius, $b =$
 $Co = 12$, $c = Ao = 9$, $a = 7854$, and $x = Ee = BD$; Now say
 $c : b :: x : \frac{bx}{c} = DC$, - and (by 47 E. 1.) $\sqrt{r^2 - x^2} = eC$,
 and $\sqrt{r^2 - x^2} - \frac{bx}{c} = De =$ the Cylinder's Height, which
 x'd by the Area of its Base $= 4axx$ gives $\sqrt{16aarrx^4 - 16aax^6}$
 $- \frac{4abx^3}{c} =$ the Solidity of the Cylinder (put $n = \frac{4ab}{c}$)
 then in Fluxions $\frac{32aarrx^3\dot{x} - 48a^2x^5\dot{x}}{\sqrt{16a^2r^2x^4 - 16a^2x^6}} - 3nx^2\dot{x} = 0$; hence
 $\frac{8ar^2 - 2ax^2}{\sqrt{r^2n^2 - x^4}} = 3n$: in Numbers $252x^2 - x^4 = 8100$; Solv'd
 $x = 6,1486$, the Cylinder's Diameter $= 12,2972$, and its
 Height $5,481933$.

Solutions to this Question were received from Mr John Nicbols, Mr Ben. Donn, Mr Geo. Godbelp, Mr Jacob Gyskill, Mr Wm Enefer, Mr Tho. Moss, Mr Rebt. Butler, and many others, as may be seen in the Catalogue.

(6) Question 126 answer'd by Mr. Tho. Moss the Proposer.

To the Authors of the Gentleman's Diary.

GENTLEMEN,

I must freely own that I did not make proper Restrictions in this Problem, which caused me to consider its Solution in a wrong Light; and indeed the Question, as it now stands, is a very ambiguous one. For it is evident, that the Rod may be made to revolve by a Force or Power acting at the Extremity thereof perpendicular to the Horizon; or it may be sustained in any Position by a Force apply'd perpendicular to the Rod, in that Position; or the Power or Force might be required to be applied with any given Angle to the Rod in the required Position; all which requires a different Solution. However, it appears to me, That the Question, as it now stands, will be consider'd in this Circumstance; that is To determine the Position of the Rod when the Weight it sustains or the Pressure upon it, caus'd by a Force always acting at Right Angles to it; is to That it sustains in an horizontal Position as 3 to 4. Therefore the following Solution is upon that Supposition.

The Centre of Gravity of the Cone AFH is known to be 12 Inches from the Vertex: Let AOB be the Horizontal Position of the Rod, and AOB the required Position thereof acting upon a Pin at the Centre O; Let fall the Perpendicular CD;

CD; put $EO = 19 = a$, $AO = 24 = b$, $EC = 4 = c$, and the Sine of the required Angle of Incidence $\angle mC = x$; moreover let the Weight of the given Cone be denoted by Unity: Then (*per Trig.*) as x : $a :: \sqrt{1-x^2}$ (Sine $\angle DOM$

Rad. being $\equiv 1$) : $\underline{d\sqrt{1-x^2}}$

$$= Em \therefore a - \frac{d\sqrt{-x^2}}{x} = Om; \text{ whence by the Laws of Me-}$$

chanics $1 \times x$ (or x) is the Pressure of the Cone acting on the Point m in the Direction CE: Therefore the Force that must be applied at the Extremity B in a Direction perpendicular to AFOB, to sustain the Rod in the Position AOA, will be truly

express'd by $\frac{ax^2 - dx\sqrt{1-x^2}}{bx}$, or $\frac{ax + d\sqrt{1-x^2}}{b}$: Con-

frequently the whole Pressure upon the Rod in a Direction at right Angles to it will be $\frac{bx + ax - d\sqrt{1-x^2}}{b}$: Moreover

the Force or Pressure of the Cone on the Rod, in the Direction $AmOB$, is defined by $1 \times \sqrt{1-x^2}$, or $\sqrt{1-x^2}$; whence the whole Pressure the Rod sustains in the requir'd Position

will be truly expressed by $\frac{bx+ax-d\sqrt{1-x^2}+b\sqrt{1-x^2}}{b}$

∴ by the Question 3 : 4 :: the last Expression : 2 (the Pressure on the Rod in an Horizontal Position, which is the same as the Pressure upon the Pin when the Weights are equal, and also at equal Distances from the Centre of Motion) : Whence $\frac{4b+4a \times x}{4b+4a} \times \sqrt{1-x^2} = 6b$, from whence x may be determin'd.

N. B. It is manifest that if the Rod was made to revolve by a constant Power or Force, or (which is the same thing) by a Weight suspended at the Extremity of the Rod; in that Circumstance the Pin would always sustain the Sum of the Weights (that is the Cone and the suspended Weight :) but on the contrary if the Force be applied always at Right Angles to the Rod, as it revolves it must consequently become variable; and therefore will be in a Direction at Right Angles to the R-

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3dly, $CB \perp C_0$ will be the Weight or Pressure upon the Point C, supposing the Rod retain'd in the Position RB by a Force acting at R, only in the Direction R_0 perpendicular to the Rod.

So that if the *Proposer's* Meaning was to find the Position of the Rod when it sustains a Weight, in a Direction perpendicular thereunto, which alone tends to break the Rod $= \frac{3}{4}$ of what it sustains when in the Horizontal Position e A, or when $DC = \frac{3}{4}$ of BC. We have a very good Method of

Solution. In the Right angled Triangle B_0C are known $BC = 24$ and $B_0 = 4$, Whence $\angle C = 24,33$ and Angle $BC_0 = 90^\circ 28'$: Then in the Right angled Triangle DC_0 are known $DC = \frac{3}{4}$ ths of $eC = 18$, and $\angle C = 24,33$, whence the Angle DC_0 will be found $= 47^\circ 42'$, from which subtract the Angle $BC_0 = 90^\circ 28'$, the Remainder $= 38^\circ 14' =$ the Angle eCB sought, supposing the Cone is to be placed upon the Rod so as the Centre of its Base be at the Extremity of the said Rod. But if the outward Edge of the Base of the Cone is to be placed at the End of the Rod (as the *Data* seems to imply, for otherwise it would have been needless to have given the Diameter of the Cone's Base) then BC will be only 19, and the Angle eCB will be found about $35^\circ 20'$ nearly.

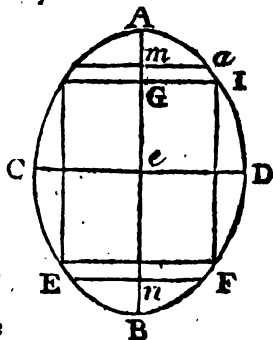
If it was required to find the Position of the Rod, when the Weight w is to the Weight W as 3 to 4; or when the Force applied at R in a Direction perpendicular to the Rod is to W in the said Ratio, or when the Weight, or Pressure, upon the Point of Suspension is to the same when the Rod is in an Horizontal Position in the said Ratio. — It would be very easy to give Solutions upon the above Principles, but I fear I have already been too prolix.

(7) Question 127 answered by Mr. *Wm Bevil*.

Let $2a = EF = 32$ Inches the Head Diam. $2b = CD = 40$, the Bung Diameter, $f = ,7854$, $b = 231$, $k = 282$, and for the Length of the Cask put $2x = mn$, also $y = Ae$, then *per* Conics $y^2 : b^2 ::$
 $y^2 - x^2 : \frac{b^2}{y^2} \times y^2 - x^2 = a^2, \therefore y^2 =$
 $\frac{b^2 x^2}{b^2 - x^2}$, if $q^2 = b^2 - a^2$, then $y = \frac{bx}{q}$,

for which put s , and let $v = Ge$
 $\frac{1}{2}$ the Length of the Cylinder,

C therefore



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therefore $s + v = BG$, and $s - v = AG$, $s^2 : b^2 :: s^2 - v^2 : \frac{b^2}{s^2} \times s^2 - v^2 = IG^2 : \frac{4b^2 f}{s^2} \times \frac{2s^2 v - 2v^3}{s^2} =$ the Content of the Cylinder a Maximum and in Fluxions $s^2 \dot{v} - 3v^2 \dot{s} = 0$, $v = s\sqrt{\frac{1}{3}}$, or $v = \frac{b}{9} \sqrt{\frac{1}{3}}$: Now if the Value of v , and s be substituted in the Equation above, we get $b\sqrt{\frac{2}{3}}$ for half Diam. of the Cylinder: Therefore $\frac{16b^3 f x \sqrt{\frac{1}{3}}}{3 q k} =$ the Content.

Again for the Solidity of the greatest Cube it is evident that $2v = \frac{2b\sqrt{2}}{s} \sqrt{s^2 - v^2}$, whence $2v = \sqrt{\frac{8b^2 s^2}{2b^2 + s^2}}$, but if the Value of s be substituted, then $2v = \sqrt{\frac{8b^2 x^2}{2q^2 + x^2}} =$ the Side of the Cube, and its Content $= \frac{8b^2 x^2}{2q^2 + x^2} \sqrt{\frac{8b^2 x^2}{2q^2 + x^2}} \div b$ (then per Question) $\frac{8b^2 x^2}{2q^2 + x^2} \sqrt{\frac{8b^2 x^2}{2q^2 + x^2}} \div b : \frac{16b^3 f x \sqrt{\frac{1}{3}}}{3 q k} :: 1 : 1\frac{1}{3} \frac{2}{3}, \therefore \frac{8b^2 x^2}{2q^2 + x^2} \sqrt{\frac{8b^2 x^2}{2q^2 + x^2}} \div \frac{8 g b}{50} = \frac{16b^3 f x \sqrt{\frac{1}{3}}}{3 q k}$ which is an Equation of the 6th Power, whence x will be found 26,295; hence the Cask's Length = 52,59.

The same answer'd by Mr. Sam. Bamsfield.

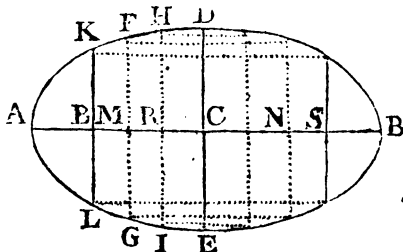
Put $b = \frac{1}{2}$ Conjugate Diam. = 20, $c = 231$ Inches in a Wine Gallon, $e = 7854$, $r = 282$, the Inches in an Ale Gallon, $p = 1,78 = 1\frac{1}{2} \frac{2}{5}$, $x = \frac{1}{2}$ Transverse Diam. Then since $\sqrt[3]{x} (= 5,7735x = nx)$ is well known to be universally $= \frac{1}{2}$ the Length of the greatest Cylinder that can be inscribed in the whole Spheroid, it follows that $x - nx = mA$, and $x + nx = Bm$; now say per Ellipsis $x^2 : b^2 :: x^2 - n^2 x^2 : b^2 - b^2 n^2 = ma^2 = 266.666$. Hence $ma = 16,32993 = \frac{1}{2}$ Cylinder's Diam.: for its Double put d , then $\frac{2d^2 n e x}{r} =$ the Content of the Cylinder in Ale Gallons per Quest. say $p : 1 :: \frac{2d^2 e n x}{r} : \frac{2d^2 e n x}{p r} =$ the Content of the Cube in Wine Gallons: Therefore $\frac{2c d d e n x}{r p} = 445,17588x = s x =$ Cube in Inches $\therefore s x \sqrt[3]{\frac{1}{2}} =$ Cube's Side, and $\sqrt[3]{\frac{1}{2} s x}$

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$\text{half Side} = \text{Ge}$; then $x - \sqrt[3]{\frac{5x}{2}} = \text{GA}$; and $x + \sqrt[3]{\frac{5x}{2}} = \text{BG}$; and (*per Prop. Ellipsis*) $x^2 : b^2 :: x^2 - 25 \sqrt[3]{\frac{5x^2}{2}} : x^2 b^2 - 25 b^2 \sqrt[3]{\frac{5x^2}{2}}$
 $\frac{x^2 b^2 - 25 b^2 \sqrt[3]{\frac{5x^2}{2}}}{x^2} = \text{GP}^2 = \text{Square of } \frac{1}{2} \text{ the Diam. of this Cask}$
 at that Place: whence the Side of its corresponding inscribed
 Square $= \sqrt{2b^2 5bb - \frac{3 \sqrt[3]{5^2 x^2}}{x^2}} = \sqrt[3]{5x} = \text{Cube's Side before}$
 found; which Equation squared gives $\sqrt[3]{5x x x} = 2bb - 5bb \sqrt[3]{\frac{5x^2}{2}}$ for x^2 put y^3 , and for 5^2 put g^3 ; then
 $g y = 2b^2 - \frac{5b^2 g y}{y^3} \therefore g y^4 = 2bb y^3 - 5bb g y$ or $g y^3 = 2bb y^2 - 5bb g$, in Numbers $14.5756 = y^2 - .0728788 y^2$;
 Solv'd $y = 12.425$; from whence x is found $= 43.828$;
 Hence having the Transverse $= 87.656$, the Conjugate $= 40$, and the Head Diam. $= 32$, the Length of the Vessel $= 52.5936$, the Cylinder's Length $= 50.6082$, and the Content of the Cask $= 206,24366$ Ale Gallons, or $251,77406$ Wine Gallons.

The same answer'd by Mr. *J. Wigglesworth*.

Let $\text{AB} = 2t$, DE
 $= 40 = 2a$, KL
 $= 32 = 2n$, $m =$
 359.05 , $n = 231$,
 $p = 1\frac{1}{2}$, $2x = \text{RS}$, A
 and $2x = \text{HI}$; the
 Diagonal of the in-
 scribed Cube; then
 $\frac{x \sqrt[3]{2}}{3} = \text{half the}$



Length of the Cube $= \text{PC}$; and because the greatest Cylinder
 that can be inscribed in the Cask is also the greatest that can
 be inscribed in the Spheroid, we have *per Fluxions* $2c \sqrt[3]{\frac{2}{3}}$
 $= \text{Diam. of the greatest inscribed Cylinder} = \text{FG}$, which
 call b , and $2t \sqrt[3]{\frac{1}{3}} = \text{the Length} = \text{MN}$; whence
 $\frac{28b^2 \sqrt[3]{\frac{1}{3}}}{m} = \text{Content of the Cylinder in Ale Gallons, and } \frac{2x^3 \sqrt[3]{2}}{n}$
 $= \text{the Content of the Cube in Wine Gallons: Then (per Qu.)}$

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$$1:p::\frac{2x^3\sqrt{2}}{n}:\frac{2px^3\sqrt{2}}{n}=\frac{2tb^2\sqrt{\frac{1}{t}}}{m}, \text{ therefore } t=\frac{pmx^3\sqrt{2}}{nb^2-1}.$$

and by the Nature of the Ellipsis $s^2 : c^2 :: s + \frac{x\sqrt{2}}{2} \times s - \frac{x\sqrt{2}}{2}$

$\therefore x^2$, whence by multiplying Extreams and Means $t^2 x^2 = t^2 c^2 - \frac{c^2 x^2}{2}$, and $t = \frac{cx}{\sqrt{2c^2 - 2x^2}}$, then from these two Values of t we

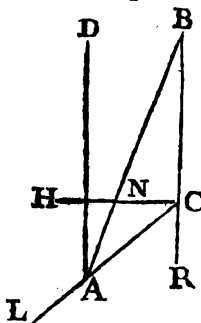
$$\text{have } \frac{pmx^2\sqrt{2}}{n^2\sqrt{\frac{1}{2}}}) = \frac{c}{\sqrt{2c^2 - 2x^2}} \text{ Reduc'd } x^6 - c^2x^4 = \frac{-n^2b^4c^2}{12m^2p^2},$$

where $x = 19,03269$; hence $t = 43,80125$, and thence $t^2 : c^2 :: t^2 - x^2 : a^2$; therefore $t^2 a^2 = t^2 c^2 - c^2 x^2$, and $x = \frac{t}{c} \times \sqrt{c^2 - a^2} = 26,28075 = \text{half the Length of the Cask};$

whence the Content $\left\{ \begin{array}{l} 206,1178 \text{ Ale} \\ 251,6204 \text{ Wine} \end{array} \right\}$ Gallons.

Mr John Nicols, Mr Ben. Donn, Mr J. Watchorne, Mr Tho. Most, Harland Widd, Mr Wm Kingstone, Mr Wm Cottam, Mr Llewelin Davies, and many others, have solved this Question, but we have been too prolix already.

(8) Question 128 answer'd by Mr. *Wm Cottam*.



Draw the indefinite Line BR South and North, set off the given Distance between *Edystone* and *Ramhead* from B to C; and at C draw the indefinite Perpendicular CH; next make the Angle LCR = the given Position of *Ramhead* from *Plymouth Fort* = S.W. by W. = $56^{\circ} 15'$, then with the given Extent in your Compasses AN of the Distance of the Ship from the Fort when they saw the Flash = 17130 Feet = 1,08143 Leagues by a Pin as a Centre at B; turn the Scale and Compasses back together from C towards H, with one Foot in the Line CH, till the other Foot falls in the Line CL as at A; draw the Line BNA and it is done. Then will A represent *Plymouth Fort*, C *Ramhead*, B *Edystone*, and N the Place of the Ship when they saw the Flash.

Demonstration: Draw DA parallel to BR, and because the Line LC cuts those Parallels, the Angle DAC = Angle LCR, the given Position of C (*Ramhead*) from A (*Plymouth Fort.*) and for the same Reason the Angle ABC = Angle BAD, the requir'd Position of *Edyngs* (B) from *Plymouth Fort* (A).

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Investigation. Let $BC = 3$ Leagues $= c$, $AN = 1,08143 = a$, the Sine of the Angle $LCR = 56^{\circ} 15' = n$, its Cos. $= r$, the Sine of the Angle $ABC = x$, and Rad. $= 1$: Then

$$\sqrt{1-x^2} : c :: 1 : \frac{c}{\sqrt{1-x^2}} = BN, \text{ and } n : \frac{c}{\sqrt{1-x^2}} + a ::$$

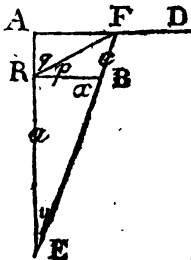
$$x : \frac{cx}{n\sqrt{1-x^2}} + \frac{ax}{n} = AC; \text{ and } r : a :: \sqrt{1-x^2} : \frac{a}{r}\sqrt{1-x^2}$$

$$= AC :: \frac{a}{r}\sqrt{1-x^2} = \frac{cx}{n\sqrt{1-x^2}} + \frac{ax}{n}; \text{ whence } x =$$

$0,35311 = \text{Sine } 20^{\circ} 40' 40'' = \text{the Position of Edystone; and by Trig. we get } AB = 4,28799, \text{ and } AC = 1,82104 \text{ Leagues.}$

The same answer'd by Mr. Rich. Gibbons, the Proposer.

Construction. Draw the Meridian Line EA, and lay down $ER = 9$ Miles; Draw RF to make an Angle with the Meridian at $R = 5$ Points; also the Parallel RB (draw them both long enough) Then take the given Distance $FB = 17130$ Feet $= 3,24432$ Miles; then with a Pair of Compasses, and keeping one Edge of the Scale constantly on E, apply both Points of the Compasses close to the same Edge till one stand on RB, and the other on RF; fix the Scale and draw the Right Line EBF, and the thing is done.



THIS easy Construction clears the following Biquadratic Equation.

Solution. Join the Meridian RA, and Parallel FA; and put $d = ER = 9$ Miles, $b = FB = 3,24432$; s and $c =$ Sine and Cosine of five Points; and $x = RA$: Then as $x : b :: d : \frac{bd}{x} = EB$, and $c : x :: s : \frac{sx}{c} = AF$: From hence (and 47 E. 1.) we have $d^2 + 2dx + x^2 + \frac{s^2 x^2}{c^2} = \frac{b^2 d^2 + 2b^2 dx + b^2 x^2}{x^2}$
 $\therefore x^4 + 2c^2 dx^3 + c^2 d^2 x^2 - \frac{b^2 d^2}{c^2} - 2b^2 c^2 dx = b^2 c^2 d^2.$

Solv'd $x = 3,0353$, from whence is had by common Trig. the Bearing and Distance of Edystone S. $20^{\circ} 40' 45''$ W. $12,8641$, and Ramhead $= 5,4634$ Miles from the Fort.

The same answer'd by Mr. Tho. Garrard.

Construction. Make $ER = 9$ Miles or 47520 Feet; $RA = 1142 \times 15 = 17130$, RB perp. to AE, and the $\angle BRF = 3$ Points

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or $33^{\circ} 45'$; thro' A draw the Conchoid AFD: Lastly thro' E, and Point of Intersection F draw EF, so shall the Scheme be truly constructed; Or if by any mechanical Method the Line FB = AR be inscribed between the Lines RB and RF, as when continued it may pass through E, the same will be effected, where F represents *Plymouth Fort*, R *Ramhead*, E *Edystone*, and B the Boat.

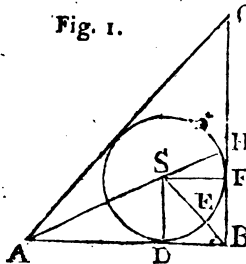
Calculation. Let the Sides and Sines of the several Angles be denoted as per Fig. Then by plain Trig. $x :: 1 : \frac{a}{x} =$

BE, and $p :: x : \frac{cx}{p} = RF$; again $y : \frac{cx}{p} :: q : \frac{cqx}{py} = FE = \frac{a}{x} + c$, $\therefore cqx = pcy + pay$; which Equation being clear'd, by 47 E. 1. will produce an affected Biquadratic Equation wherein the Root x will be found = the natural Sine of $69^{\circ} 19' 17''$; consequently the Bearing of *Edystone* from the Fort or Boat = $20^{\circ} 40' 43''$, Distance from the Boat 9,6197 Miles, and the Distance of *Ramhead* from the Fort was 5,473.

BUT the Value of x in the above Equation may much more expeditiously be found thus: Let each Side of the Equation be divided by cqx , then will it stand thus, $\frac{x}{y} - \frac{pa}{qcx} = \frac{p}{q}$ or writing t for the Tangent and v for the Cosecant of the Arch of which x is the Sine, we have $t - \frac{pav}{qc} = \frac{p}{q}$; now seeing the Angle will be nearly known by the above Construction, the same may be corrected by the help of a Table of Natural Tangents and Secants, and the Method of Trials and Errors so often mentioned in the *Diary*.

This Question was curiously solv'd by Mr *John Nichols*, Mr *Benj. Donn*, Mr *Steph. Hartley*, Mr *Zach. Gaskill*, Mr *J. Watchorne*, Mr *Tbo. Moss*, Mr *Wm Kingstone*, *Harland Widd*, Mr *Sam. Bamfield*, and others.

Fig. 1.



(9) Question 129 answer'd by Mr. *Benj. Donn*.

Let $x = \text{Rad. Circle} = SE = SD = DB$ &c. $a = EB = 4$; then $a + x = SB$ $\therefore a^2 + 2ax + x^2 = 2x^2 \therefore x = a + a\sqrt{2}$. Then by *Thacker's* 13th Probl. AB and $\angle BAS$ will be known. Consequently in the Right angled Triangle will be given BA and $\angle CAB$ to find AC and BC.

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The same answer'd by Mr. Tho. Mofs.

It is evident, from the Nature of the Problem that the Radius of the inscribed Circle is given; whence the said Problem is reduced to this, *viz.* Having the Base (*i. e.* the given bisecting Line) the Vertical Angle (a right one) and the Line that bisects the Vertical Angle, and terminates at the Base, (the given Radius *plus* the given Distance from the Right Angle to the Periphery of the inscribed Circle) to determine the Triangle.

Construction.

With the Radius $AB = EB = \frac{1}{2}$ the given bisecting Line describe a Circle (See *Simpson's Algebra*, pag. 382.) draw BC perpendicular to AE , join CE ; make EF perp. to

CE , and $=$ to half the given Line that bisects the Right Angle; join CF , and upon F as a Centre with the Radius EF describe the Circle EDG : Likewise from C with the Interval CD describe the Arch DI cutting AE in I ; from C thro' I draw CIP ; join AP , and PE ; and APE will be the required Triangle. — Moreover produce PE , and make the $\angle BAQ = \angle EAP$; and APQ will be the requir'd Triangle: The Demonstration and Calculation of which are manifest from the above mentioned Quotation.

The same answer'd by Mr. Wm. Enefer.

Put AH (see Fig. 1. foregoing) $= 48 = a$, $BE = 4 = b$, also let x and $y =$ Sine and Cos. $\angle HAB$, and $z = SD = SF = BF$; then $z + b = SB$, and (by 47 E. 1.) $2xz = b^2 + abx + z^2 \therefore z = b\sqrt{2} + b = 9.65684$, which call (c). Now we have the same Data as in Prob. xiii. p. 25. of *Thacker's*

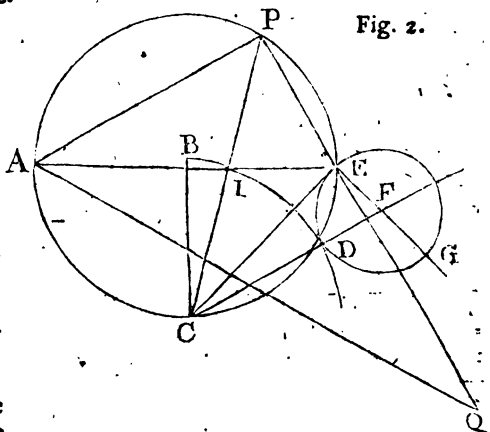


Fig. 2.

scell. Consequently the Quest. might be now solved by the same Method; but for Variety's sake I shall proceed thus; (Rad.) : $a :: y : ay = AB$; again $x : c :: y : \frac{cy}{x} = AD \cdot \frac{cy+cx}{x}$: $AB = ay$; Then $cy+cx = axy$, and $y+x = \frac{a}{c} xy$, divide by xy and it becomes $\frac{1}{x} + \frac{1}{y} = \frac{a}{c} = 4,97057$, that is the Natural *plus* the Natural Cosecant of the Angle $HAB = 97057$; whence by a Table of Natural Secants I find by Inspection that the Angle sought for is $14^\circ 43'$ nearly; then a few Trials I find it must be $14^\circ 42' 56''\frac{1}{2}$. Hence $AB = ay = 46,4255$ and the Angles are known; whence I find $C = 53,30476$, and $BC = 26,1929$. *W. W. F.*

The same answer'd by Mr. Zach. Gaskill.

To find the Rad. of the inscribed Circle (SD or SF) put x = Rad. then will $x^2 + 8x + 16 = 2x^2 \therefore x = 9,6568$, which in (b), call x and y the Sine and Cosine of the Angle HAB ; then $x : b$ (SD = SF) :: Rad. = 1 : $\frac{b}{x} = AS$, and $y : b :: 1 : \frac{b}{y} = SH \therefore \frac{b}{x} + \frac{b}{y} = 48 = d$; divide by b , and we have $\frac{1}{x} + \frac{1}{y} = \frac{d}{b} = 4,9706$, which call (c); Then is $x + y = cxy$. But $x^2 + y^2 = 1$ (per 47 E. 1.) $\therefore x^2 + 2xy + y^2 = 1 + 2xy$, and $x + y = \sqrt{1 + 2xy}$, and consequently $cxy = \sqrt{1 + 2xy}$: Reduc'd $y = \sqrt{\frac{1}{c^2} + \frac{1}{c^4}} + \frac{1}{c^2} = ,245690$. The Sum of the Sine and Cosine being fitted to correspond with the Logarithm of that Number are $14^\circ 43' 22''$, and $75^\circ 16' 38''$, whence the Rest may be found.

N. B. This Question was propos'd some Years since by Mr *Tbo. Bird*, the *Ladies Diary*; but as Tabular References are Useful and Allow'd in the Conclusion especially relating to Angles, I humbly presume the above is as easy and simple as if it was thrown into a Tangent.

This Question was answer'd by Mr *John Nichols*, Mr *John Hudson*, Mr *Rich. Mallock*, Mr *J. Waterborne*, Mr *Jo. Scott*, Mr *John Wigglesworth*, Mr *Wm Kingstone*, Mr *Matt. Ward*, Mr *John Woolley*, Mr *Tbo. Walker*, Mr *Wm Smith*, and others, as may be seen in the Catalogue.

(10) Quest. 130. answer'd by Mr. *Wm Enefer*,

Put $v = 1000$, $n = 20$, $R = 1,05$, and A the required annuity, then by common Rules;

$$A =$$

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$$A = \frac{v \times R - 1}{1 - R^n} = 80,242576, = 80 l. 4 s. 10 d. \frac{3}{4} \text{ nearly.}$$

We receiv'd many Solutions to this Question, but as they all agree, and are pretty much alike, we shall insert no more of them, but refer you to the Catalogue.

ERRATA, EMBENDATIONS, and REMARKS.

ERRATA.

In Mr *Wm Kingston's* Solution to Probl. 108. AB should be = 5877853, BD = 133599; whence $\frac{b}{a} = .705118 = \text{Sine } 44^\circ 50' 20''$, and the requir'd Angle $21^\circ 8' 34''$.

In Mr *Garrard's* Solution to Problem 118. *Diary* 1753. pag. 36. Lines 27 and 28. instead of PCE = BCR = $44^\circ 52' 47''$, Read PCE = $44^\circ 52' 47''$, whose Complement is the Angle BCR; And instead of RCN = $69^\circ 07' 20''$, Read $68^\circ 52' 54''$.

REMARKS by Mr. *Tho. Mofs.*

1st, I was very much surpriz'd when I saw Mr *Kingston's* pretended Construction to the 116th Question. I think I may be bold to say, you did not receive one Geom. Construction to that Question. I am greatly at a Loss to know how that can be call'd a Solution, when there is no Mention made of the Perimeter; and without that the Question, it is plain, is unlimited: For by the same Method we might give as many Solutions as it is possible to take two Lines in the given Ratio of the Lines bisecting the Base, and the vertical Angle: Therefore it is evident that the Triangle ABC can neither be the requir'd Triangle, nor one similar to it: and we might with equal Propriety say, that by having the Base and Perpendicular of any Plain Triangle (the Right-angled one only excepted) we can determine the Triangle.

2d, Page 33. Line 7. from the Fig. instead of IF and BH, IC and BD, AB and FD; Read IF, BW, IC, BD; AB and FD.

3d, Page 34. in Mr *Bevil's* Solution, instead of $b^2x^2 + a^2x^2 = b^4$ Read $b^2x^2 + a^2x^6 = b^4$.

ERRATA for the last Year's Diary.

In the second Line of the 4th *Ænigma*, for But as the Darknesh, Read But at the Instant Darknesh

And after the 7th Line, in the 6th *Ænigma*, Read this Line, which was entirely omitted,

Could ever reach with all its Learned Store.

Answers to the *Ænigma's* in last Year's Diary.

1. HAPPINESS.	3. LOVE.	5. TEA.
2. A LOUSE.	4. A BLANK.	6. LETHE.

New.

42 New Mathematical Questions, 1754.

*New MATHEMATICAL QUESTIONS, to be answer'd
in the next Year's Diary.*

(1) Question 131 by Mr. *Alex. Rowe*.

A Water Mill is to be built, where the Current of the Water has a Fall of 22 Feet, or perpendicular Descent; the Architect desires to know the Diameter of the Water Wheel so that the Power or Force it shall receive from the issuing Water may be the greatest possible?

(2) Question 132 by *Tabularius*.

Suppose a right angled Triangle to revolve about its Perpendicular ($a = 10$ Feet); the Solidity of the generating Cone will be equal to the Perimeter of the Triangle, drawn into the Area of a Circle described by its Centre of Gravity, in the said Revolution; Required the Base of the Triangle?

(3) Question 133 by Mr. *Poul Sharp*.

Requir'd the Perimeter of the least common Parabola that will circumscribe a Circle whose Diameter is 32 Inches?

(4) Question 134 by Mr. *J. Wigglesworth*.

The Fences of a Piece of Land are the Abscissa, Ordinate, and Curve of the Conic Parabola. Now there is given the Perimeter or Sum of the three Sides = 80 Chains; and the Ordinate is to the Abscissa as 6 to 5: Requir'd the Area by a simple Equation?

(5) Question 135 by Mr. *J. Wigglesworth*.

Requir'd to find (x) and (y) $\begin{cases} x^3y + y^3x + x^2 - xy = 76864 \\ 4x^2 - 4y^2 + x + y = 615104 \end{cases}$
in the following Equations?

(6) Question 136 by Mr. *Tho. Mest*.

To determine the Figure of a Vessel, which being fill'd with Water, or any other Liquor, the Surface thereof shall descend uniformly, by evacuating at a Hole in the Bottom (or Vertex) of the said Vessel. And the Content, in Ale Gallons, when its top Diameter is just 20 Inches?

(7) Question 137 by Mr. *John Thompson*.

A Gentleman bought a Field in the Form of a right angled Triangle, the Sum of whose Sides is 60 Chains at the following Rate, *viz* for every Chain of the Perpendicular he was to pay two Guineas, and for each Chain of the Base one Guinea:

Quare

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Quare the Sides of the Field when the Gentleman has the most Land in proportion to his Money ?

(8) Question 138 by Mr. *Richard Gibbons*.

Given the Area of the Segment of a Circle = 3 Feet, and that of its circumscribing Parallelogram = 4 Feet: *Quare* the Circle's Diameter ?

(9) Question 139 by Mr. *J. Holden*.

At what Time of the Year 1753 was the Night (exclusive of Twilight) longer at *York*, than it was either at *London* or *Edinburgh* ?

(10) Question 140 by Mr. *Sam. Bamfield*.

What was the Time in the Afternoon at *London* on the longest Day 1752 when an Object making an Angle with the Horizon of 54° did cast its Shadow due West ? Also what Angle must the Object or Gnomon make with the Meridian ?

New Ænigmas to be answer'd in next Year's *Diary*.

(1) Ænigma 89. by Mr. *Sam. Hammond*, of *Nottingham*.

I FIRST impos'd on *Mother EVE*,

And still continue to deceive ;

To which I am by Nature prone,

But fail in the Attempt if known :

For, as I act in deep Disguise,

My Power in Delusion lies ;

Being ever just the Contrary

Of That which I pretend to be :

Yet (seemingly) I reconcile

Real Contradictions ; and beguile

Weak *Mortals* so, as (in a Trice)

To think *Vice Virtus, Virtue Vice*.

I hide more *Faults* than *Love*, yet *Hate*

Doth not so many *Faults* create ;

And Each I *hide*, or *strive* to *do*,

Is, by that Act, increas'd to Two.

TRUTH, JUSTICE, CHARITY also,

Oppose *Me* ; *Fear's* my Friend and Foe :

Fraud, Flatt'ry, Malice, are my Friends,

Because I often serve their Ends.

My *Subtilty*, too oft, defies

The *Penetration* of the *Wise* ;

Tho' *Fools* and *Children* do reveal

What I endeavour to conceal.

(2) Ænig.

(2) Ænigma 90. by Mr. *John Dyke of Manningford.*

Tho' *Something* I am, yet I *Substance* have none,
 Am *praised* or *liked* by every one ;
 Nay, *long'd for* by some : Tho' observe (by the bye)
 The *Prude* says she hates me ; but that is a Lie.
 I'm *heard* and I'm *felt*, but I never was seen ;
 Begot by young *Ralph*, on sweet *Sue of the Green*.

(3) Ænigma 91. by Mr. *William Heaford.*

YE *Artists*, who in abstruse Riddles deal,
 To you I only for my Name appeal :
 I who for many Years have noted been,
 And in your Books of Record often seen,
 Implore of you, if it may granted be,
 That to the World you will discover Me.

Know then, in various Colours I appear,
 Attend each honest *Patriot* ev'ry where ;
 Their very Thoughts and Actions are by Me
 Extended to their full Maturity :
 And tho' I'm settled in the Midst of Store,
 Am always ready to assist the Poor.
 Where Honesty abounds you'll meet with Me,
 In homely Cottage, Town, or Country ;
 And yet, whatever you may think my Station,
 I am the first in Office thro' the Nation :
 I seek not Dignity, yet such my Case,
 That in the *House* of LORDS I have a Place ;
 In each Oration there I have the Leading,
 But never am concern'd in any Pleading.
 In ancient Times (if *Hist'ry* does not lie)
 The Symbol of Eternity was I ;
 And to the present Time I am set forth
 As a Distinguisher of noble Birth.
 But one thing more, and then it may suffice,
 Tho' let not my Conclusion cause Surprise :
 Whilst you employ your Thoughts what I may be,
 For I declare there is no End of Me.

(4) Ænigma 92. by Mr. *D. Davis*, Writing Master, at *Burleigh*, near *Minchinhampton*, in *Gloucestershire*.

Tho', *Adam* like, my Origin's from Earth,
 To *Vulcan's* Sons I chiefly owe my Birth ;

But

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But since my Form scarce *Euclid* could descry,
Excuse Description — search Antiquity —
But *far* you need not go to find my Name,
The sacred *Records* will unfold the same.

When *Levi's* Sons to Worship did repair,
By positive Command I still was there ;
But now (degen'rate Age!) you rarely see
That in the *Church* I can of Service be ;
Nay more (sad Proof of Piety's Decay)
I to the *Closet* seldom find my Way.

Not so at *Plays*, and *Balls*, and *Masquerade*,
(To *Britain's* Honour now a thriving Trade)
On these *important* Things I still attend ;
For *one's* appointed always for that End.

At your *late* Suppers too, I often wait,
But ne'er sit down, yet sometimes catch a Bit ;
Not of cold Treats, my *Food* is hot and light. }
In Country *Cottages* I'm rarely seen,
But never fail to wait upon a *QUEEN*.

Take one Hint more, and then the Mist is fled,
I *prey* upon the Living, not the Dead.

(5) *Ænigma* 93. by Mr. *Andrew Wheldon*.

When God at first all *Mundane* Things did frame
From *Chaos* wild ; and *Adam* them did name :
When distant *Stars* their Motions first begun,
And *Planets* to move round their central *Sun* :
In *Paradise* I had not then a Name,
But 'fore *Man's* Exile thence I thither came.
God made not Me — my *Sire*, some have said
Did dwell in *Heaven* before this *Earth* was made.
I Mortals taught their Bodies to adorn,
Or We had Naked liv'd as we were born :
I have a *Son* — We both were born one Day,
Tho' it was Years e'er He began his Sway :
My Mother's Son felt first his mighty Stroke,
And many since have borne his painful Yoke :
My Enemies all *wish* my Son to know,
For them he frees from ev'ry Pain and Woe.
But all my Votaries him Fear and Hate,
For those he *destines* to a wretched State.
MILTON, by *Mataphors*, our Descent shews ;
Ye prying Wits, my *om'nous* Name disclose.

(6) *Ænigma*

- (6) Ænigma 94. by Mr. John Noorthouck, of Watford.

Attend, ye Riddling Puzzling Tribe,
 While I my Properties describe.
 Of many, various, Shapes I am,
 A Square, or Parallelogram,
 An Oval, Circle, Polygon,
 Or what my Maker fixes on;
 A Prism, Cylinder, or Cone,
 Or Parallelopipedon:
 And as my Shapes; you see, are various,
 My Substance likewise is precarious;
 Sometimes so hard I'd brave the Axe,
 Sometimes almost as soft as Wax;
 And if you Husbands are that read,
 Sometimes of what you chiefly dread:
 But yet I commonly am found
 To have a Mouth with Eyes set round:
 My Mouth I eat withal, no doubt,
 But from my Eyes I give it out;
 And 'tis a Secret few can tell
 How to prepare my Diet well.
 (I'm sometimes found to have a Brother,
 And we're not much unlike each other;
 He has no Mouth, but Store of Eyes,
 And what he eats so much does prize
 He voids it and again he eats it;
 And ev'ry Time he can repeats it)
 All Kinds of Learning I command,
 Yet not a Science understand:
 Have many Servants to attend Me,
 The Sons of Knowledge all befriend Me;
 And, in return, I often do
 Procure them Fame and Money too.
 All Trades and Manufactures I
 With kind Assistance do supply:
 From what I've told, I make no Doubt
 But You, with Ease, will find Me out.

- (7) Ænigma 95. by Mr. D. Davis, Writing Master, &c.

It's strange (methinks) that I'm forgot,
 And no Ænigma on Me wrote;
 When Things less useful do appear,
 T'amuse the Publick ev'ry Year.

What

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What tho' my Size is very small,
 I th' Learned World I'm us'd by All;
 By Judge, Divine, and Politician,
 By Poet-Laureat, and Physician;
 Nay, ev'ry School-boy knows me well,
 When He the *Alphabet* can tell:
 From hence, you'll guess I must appear
 I th' *Cross-Cross-Row*; but pray forbear,
 Nay be assur'd (such is my Pride)
 I o'er that Rank do still preside.

In *Politics* I have my Share,
 Yet ne'er was seen in *Peace* nor *War*;
 With *Magistrates* I still resort,
 Tho' never shew'd my Head in Court.
 In *Oxford*, (deem'd the *Muses'* Seat)
 I never yet a Place could get:
 And tho' in *LONDON* don't appear,
 Look o'er *Guild-Hall*, you'll find me there.

Nay more, (to add to your Surprise)
 I am this Moment 'fore your Eyes!

(8) *Ænigma* 96. by Mr. R. M. *Nottingham*.

A Monster dire! from Human Race I spring,
 And Woes unnumber'd in my Train I bring:
 I ravage all around the Earthly Ball,
 But *Britain's* Isle attends my greatest Call;
 My Vot'ries there with fiery Pangs I tease,
 And oft their Limbs with cruel Tortures seize,
 In painful Bondage, Tyrant-like, confine,
 And make 'em to my haughty Will resign;
 For Fury like, I'm greatly dreaded here,
 And put the boldest Hero, into Fear;
 Tho' often nought but Patience sets 'em free,
 From this my bold and cruel Tyranny.
 Yet some there be my Pangs would joyful chuse,
 But stubborn Pow'r! my Thralls I them refuse;
 The Poor, good hap! do seldom wear my Chains,
 Or bear the Rigour of my burning Pains:
 The Great and Wealthy mostly are my Slaves,
 And oft I send 'em to their silent Graves;
 But Those that from my galling Chains get free,
 With Spirits blith, solace their Liberty.
 No more — For those I visit soon will know my Name
 Without a *Diary* to explain the same.

An

48 New Anagram, Paradox, Rebus, &c.

Ænigmatical ANAGRAM, by Mr S. Hammond, of Nottingham.

Some talk of *Cupid's* Darts and Flame when they Addresses make,
But fair *Clarinda's* Maiden-name makes greatest Heroes quake;
For if a *Point* so sharp disclos'd as almost pierc'd me thro';
And when the *Letters* were transpos'd I did a *Prickle* view:
Yet but *five* Letters it contains, of which *four* Cons'nants are;
I've said enough; it now remains that you her *Name* declare.

A PARADOX, by Mr. John Dyke.

Twelve Trees (of different Kinds of Fruit)

I in *Six* Rows would plant,

In each Row *Four*; — but how to do't

I your *Affiance* want.

REBUS, by Mr. John Noortbouck.

Take Half a foreign *Soldier's* Name,

With what a *Parson* wears;

It makes what *Miss* wou'd fain possess,

When past a Dozen Years.

An Alphabetical Catalogue of Contributors to this Diary.

The Letters i, ii, &c. shew the Quest. the Figures the Ænig. each answer.

MR. Tho. Arundel 2. Mr W^m Bevil ii, iv, vii. prop. i. Mr Wm Bacon viii, ix, x. Mr Rob. Butler i, ii, iv, v, vi, vii. Mr Sam. Bamfield all Q. 1, 2, 4, 5. T. C. Writing Mast. iv, v, vii, x. Ecl. Mr J. Coates. Mr John Chester 2, 4, 5. Mr Wm Cottam i, ii, iii, vi, vii, viii, x. Prop. i Q. 2 Æn. and 2 Paradoxes. Jack Careless ii, iv, v, ix, x. 1, 2, 5. Mr Ed. Cross ii, iii, iv, ix. Mr Ben. Donn all Q. 1, 5. prop. i Q. Mr John Dyke 2, 4, 5. prop. 1 Æ. D. Davis Writing Mast. &c. prop. 2 Æ. Mr L. Hewelin Davis iii, vii, ix, x. Mr Wm Enefer i, ii, iv, v, ix, x. 1, 2, 4, 5. Mr Geo. Godhelp iii, iv, v. prop. i Q. Mr Zac. Gaskill v, viii, ix. Mr Ric. Gibbons ii, iv, viii, ix, x. prop. 2 Æ. Mr Tho. Garrard all Q. Mr John Hudson ix, x. Mr Steph. Hartley i, iv, viii, x. 1, 2, 4, 5, 6. Mr Wm H. iv, x. Mr Sam. Hodgkin 2, prop. i Q. Mr J. Holmgworth. Mr Wm Heaford 2, 4, 5. prop. 1 Æ. Mr John Holden all Q. prop. 1 Æ. Mr Cha. Jacka 1, 2, 5. Mr Wm Kingstope all Q. 1, 2, 4, 5. Mr Tho. Love 1, 2, 3, 5. Mr Cha. Mason Jun. prop. i Q. Mr Rich. Mallock iv, viii, ix, x. Mr Tho. Moss all Q. but 2. prop. iii new Q. Mr John Nichol iii, iv, v, vii, viii, ix. Mr John Noortbouck 1, 2, 5. 6. prop. 1 Æ. 1 Reb. Mr Abr. Pethebridge. Mr Tho. Pooke x. 1, 2, 5. Mr Rob. Pearson 2. Mr Jos. Piel Writing Mast. &c. Mr Wm Richardson Schoolmaster in Durham prop. 1 Æ. Mr Alex. Rowe x. 2, 3, 5. prop. ii new Q. Mr Edw. Rogers ii, ix, x. Mr Jos. Scott iv, ix, x. Mr Paul Sharp ii, iv. 1, 2, 5. Mr Wm Swift 4, 5, 6. Mr Wm Smith ix, x. 1, 2, 5. Mr Wm Spicer ii, iii, iv, x. Tabularius i, ii, iii, iv, v, vi. Tryphena 1, 2, 5. Mr John Thompson iii, iv, ix. Mr John Watchorne i, ii, iv, v, vii, viii, ix, x. Mr John Wigglesworth ii, iv, v, vii, ix, x. Mr Harland Widd i, iv, vii, viii, x. and Ecls. Mr And. Wheldon prop. i Q. and 1 Æ. Mr Matth. Ward ix, x. prop. i Q. Mr John Woolley ii, iii, ix, x. 2, 3, 4, 5, 6. Mr Tho. Walker iii, ix.

F I N I S.

The LADIES *Diary*:
Woman's ^{9th} ALMANACK,
For the YEAR of our LORD, 1754.
beg the Second after BISSEXTILE, or LEAP-YEAR.
Containing New Improvements in ARTS and SCIENCES,
and many Entertaining PARTICULARS;
Adapted for the *Use* and *Diverſion* of the
F A I R - S E X

being the *Fifty-first* ALMANACK Published of this Kind.



Y^e Happy FAIR, whom Sacred Truths portend,
Accept, propitious, what Your Selves inspire :
To YOU each MUSE and GRACE indulgent bends,
And SCIENCE wide it's ample Bounds extends.
Alike your FORM and WIT resistless charm,
With LOVE and VIRTUE every Bosom warm.

Printed by *A. Wilde*, for the Company of STATIONERS, 1754.



P R E F A C E



THE *LADIES DIARY*, of so many Years Establishment, which has given Birth to a Number of other useful Productions of the like Kind, certainly claims the Regard of the Mathematical World; not so much, perhaps, for what it contains, as for promoting a Taste for *Science*, and an Emulation to excel in Useful Knowledge.

It were indeed to be wish'd that proper Care had been always taken to keep up the Character of a Work of such General Benefit, and to render its Merit and Superiority incontestable. But, whatever *Objections* may have been made to some late *DIARIES* (the Weight of which we shall not here examine into) no Part of the Blame, real or imaginary, can be supposed to fall on the Contributors; the Compiler *only* being answerable for the Error he publishes to the World: And it certainly would be thought a poor Plea for such an One to alledge, in his own Defence, that *he* was deceived and misled by his Contributors---He that takes upon him the Direction of a Work of this Nature, ought not only to be able to distinguish, and select out proper Materials, but even to furnish from his own Invention, what may, upon Occasion, be farther necessary: Otherwise he may be justly look'd upon as a presumptuous, unskilful Pilot, who takes the Charge of a Ship, tho' he knows little, or nothing, of Navigation, and is less qualified for that important Trust than the major Part of the Ship's Company.

But, tho' the Conductor only, is accountable for what he publishes; yet, on the other Hand, we have Reason to wish that many Correspondents to this *DIARY* would be more careful and exact in their Compositions; which would redound much to their Reputation, and give more frequent Opportunities of obliging them. Of the great Number of Mathematical Problems sent to us, very few are found fit for the Publick: Which we do not impute to a Want of Ability in the Authors, but to a wrong Taste, and a Desire of Superiority, by puzzling with Difficulties, without

P R E F A C E.

without regarding whether they have their Uses, or not. In Order to give some Idea what Kind of Questions we apprehend will be most proper and acceptable, we shall here venture to subjoin a few General Observations.

First, In Problems of all Kinds the Conditions ought to appear natural, and such as might occur in the Application of that particular Branch of Science to which they belong.

Secondly, All Questions, especially *Geometrical Ones*, are more eligible in a plain, elementary Manner, than apply'd to frivolous Speculations, which, tho' in Nature, have no Appearance of Use.

Truths, clearly laid down, and demonstrated scientifically, may, afterwards, be discover'd to have many important Applications, tho' none of these, at first, occurred; whereas, to see the same Truths degraded by a Misapplication, must give Disgust to Persons of Understanding and Lovers of Science, at the same Time that it furnishes Matter of Ridicule for those of a different Taste.

Thirdly, No Question ought to have Place merely upon Account of its Difficulty, much less for requiring more Pains in tedious Computations, than any Man that knows what to do with this Time, can possibly bestow upon it. Too many Questions of this Sort, it must be own'd, have appear'd in this *DIARY*; and it were to be wish'd that such Gentlemen who are emulous of excelling this Way, would for the future pay a little more Regard to the Time and Patience of their Fellow-Contributors. — Problems in the more difficult Branches of Science, if well chosen, we shall be far from discountenancing. These furnish a large Scope for Invention, and improve the Reasoning Faculties; and when they admit of elegant Conclusions (and such only are proper) afford a very pleasing Satisfaction to a Mind habituated to the Discovery of Truth. But there is a wide Difference between These and the Kind we have been speaking of above; in which Invention is quite useless, and Labour only necessary. Nothing can authorize our giving Place to such. No Problem (unless it has some particular Application to recommend it) can be esteem'd a good One, whose Solution is tedious, inelegant, and a Work of Labour only.

Having thrown together a few loose Hints with Regard to the Composition of Mathematical Questions; a few others, in Relation to that Part of the *DIARY* stiled the *Oracle*, or *Querist*, may not be here improper.

QUÆRIES about *Religion* too often tend to promote *Infidelity*; and have given *Offence*, and are therefore, by no Means, to be allowed.

Meta-

P R E F A C E.

Metaphysical Quæries commonly mean Nothing; and neither edify nor divert.

Political Subjects are as little to our Purpose as *Metaphysical Ones*; and seldom admit of a more satisfactory Determination.

But, above all, we cannot allow of those sarcastical, ill-manner'd *Quæries* levell'd at the *Fair-Sex*. Nothing can be more improper and unpardonable, in a Work professedly calculated for their Use, and honour'd with their Countenance and Encouragement.

Whatever tends to promote useful Knowledge (as far as our narrow Limits will allow) we shall gladly receive: Nor will *Quæries* (or other Essays) design'd to excite Mirth and Humor be unacceptable, provided no Personal Scandal is intended, and a due Regard to Decency is preserved.

It is not our Design, in the Rules prescrib'd above, to check the Ardor and Invention of our Contributors, but to turn them upon proper Subjects, and thereby prevent that Chagrin and Resentment that must naturally arise on being disappointed, in not finding their Performances inserted. *Superior Merit*, where-ever we find it, we shall always endeavour to distinguish in a proper Manner; yet, at the same time, have a due Regard to our less experienced Readers, by constantly furnishing something proportion'd to their Understanding, wherein they may have an Opportunity of exercising, and shewing their Abilities. As our Task is not to write a *Mathematical Treatise*, but a *DIARY* for the *LADIES*, it is hop'd that some Things, that might, in another Place, be thought improper, will escape uncensured *here*. It is our Interest to oblige every Class of Readers: And our Inclination strongly prompts us to encourage the immature Attempts of rising Geniuses. The most Timorous may communicate their Thoughts freely to us without any Apprehension, or Danger of being exposed to the World. And, tho' it is impossible for us to please *All*, we shall industriously avoid giving just Cause of Offence to *Any*.—To see the only Person that ought to be answerable for what is Printed, the First himself to decry and ridicule *It*, must argue an uncommon Degree of Confidence and Ill-nature; such a Conduct, in a Compiler, being infinitely more reproachable than the Want of Judgment he would endeavour to screen, by being the First to cry, *Stop Thief*.

MARMADUKE HODGSON

St. Martin's, June 16, 1753.

All Correspondents are desired to send their Letters [*Post Paid*] to Mr. Simpson, at Stationers-Hall, London, before the Beginning of May, otherwise they will be too late to be inserted.

1754.

January hath XXXI Days.

First Quarter, the 1st, at 7 Afternoon.

Full Moon, the 9th, at 2 Morning.

Last Quarter, the 15th, at 6 Afternoon.

New Moon, the 23d, at 9 Morning.

First Quarter, the 31st, at 2 Afternoon.

Sun enters ==
19th. 12 h. 46 m.
Apparent Time.

1	T	Circumcision: Or, New-Year's-Day	8	5	3	55	Morn.
2	W		8	5	3	55	0 31
3	T		8	4	3	56	1 35
4	F		8	3	3	57	2 39
5	S	Old CHRIST-MASS-DAY	8	2	3	58	3 45
6	F	Epiphany: Or, Twelfth-Day	8	1	3	59	4 51
7	M		8	0	4	0	5 53
8	T	Lucia	7	59	4	1	6 49
9	W		7	58	4	2	7 rises
10	T	Princess Elizabeth Born	7	57	4	3	8 A 30
11	F		7	56	4	4	7 53
12	S		7	55	4	5	9 10
13	F	1 Sunday after Epiphany. Hilary	7	54	4	6	10 26
14	M	Oford and Camb. Term Begins	7	53	4	7	11 43
15	T		7	51	4	9	Morn.
16	W		7	50	4	10	0 58
17	T	Old Twelfth-Day	7	49	4	11	2 9
18	F	Prisca	7	48	4	12	3 16
19	S		7	46	4	14	4 16
20	F	2 Sunday after Epiphany	7	45	4	15	5 12
21	M	Agnes. In eight Days of St. Hilary	7	44	4	16	5 59
22	T	Vincent [1 Return	7	42	4	18	6 38
23	W	Term Begins	7	41	4	19	7 sets
24	T		7	40	4	20	8 A 49
25	F	Conversion of St. RAUL	7	38	4	22	6 59
26	S		7	36	4	24	8 1
27	F	3 Sunday after Epiphany	7	35	4	25	9 4
28	M	From the Day of St. Hil. in 15 Days	7	33	4	27	10 7
29	T	[2 Return	7	31	4	29	11 11
30	W	King CHARLES I. Martyr'd	7	30	4	30	Morn
31	T		7	28	4	32	0 15

Day	L. of D.	Day Inc.	D. breaks	Tw. ends	C. bef.	S.	Sun's Dec.	Stars So.
1	7 50	0 6	6 0	6 0	4 16	23	1	8 A 43
6	7 57	0 13	5 58	6 2	6 32	22	30	8 21
11	8 7	0 23	5 54	6 6	8 37	21	47	7 59
16	8 19	0 35	5 49	6 11	10 27	20	55	7 38
21	8 32	0 48	5 44	6 16	11 59	19	53	7 17
26	8 47	1 3	5 38	6 22	13 12	18	40	6 55

1754. February ~~hag~~ XXVIII Days.

Full Moon, the 7th, at 1 Afternoon
 Last Quarter, the 14th, at 5 Morning
 New Moon the 22d, at 4 Morning

Sun enters ♈
 18th. 3h 38m.
 Apparent Time.

W.	SUNDAYS, HOLYDAYS, &c.	Sun rises	Sun sets	Moon sets
1		7 27	4 33	1 M 19
2	S Purification; or, Candlemas-Day	7 25	4 35	2 24
3	F 4 Sunday after Epiphany	7 23	4 37	3 27
4	M On the morrow of Purif. Blef. Mary	7 21	4 39	4 25
5	T Agatha [3 Return	7 20	4 40	5 15
6	W	7 18	4 42	5 57
7	T	7 16	4 44	6 rises
8	F	7 15	4 45	6 A 34
9	S In 8 days of the Purif. of Blef. Mary	7 13	4 47	7 59
10	P Septuagesima Sunday [4 Return	7 11	4 49	9 19
11	M	7 9	4 51	10 36
12	T Term Ends	7 7	4 53	11 53
13	W Old Candlemas-Day	7 5	4 55	Morn
14	T Valentine	7 3	4 57	1 3
15	F	7 1	4 59	2 7
16	S	6 59	5 1	3 4
17	F Sexagesima Sunday	6 58	5 2	3 54
18	M	6 56	5 4	4 36
19	T	6 54	5 6	5 11
20	W	6 52	5 8	5 43
21	T	6 50	5 10	6 12
22	F	6 48	5 12	6 sets
23	S	6 46	5 14	6 A 55
24	F Quinquagesima. Shrove-Sund. St. Matthias	6 44	5 16	7 57
25	M	6 42	5 18	9 0
26	T Shrove-Tuesday	6 40	5 20	10 5
27	W Ash-Wednesday	6 38	5 22	11 8
28	T	6 36	5 24	Morn.

Days	Length of Day.	Day In- creased.	Day breaks	Twilight ends	Clock bef. Sun	Sun's Declin.	7 Stars South.
	9 6	1 22	5 31	6 29	14 12	17 2	6 A 32
6	9 24	1 40	5 23	6 37	14 40	15 32	6 11
11	9 42	1 58	5 15	6 45	14 46	13 57	5 51
16	10 1	2 17	5 6	6 54	14 35	12 15	5 32
21	10 20	2 36	4 57	7 3	14 4	10 28	5 13
26	10 40	2 56	4 48	7 12	13 19	8 37	5 54

1754. March hath XXXI Days.

First Quarter, the 2d, at 6 Morning
 Full Moon, the 8.h. at 11 Afternoon
 Last Quarter, the 15h, at 7 Afternoon
 New Moon, the 23d, at 10 Afternoon
 First Quarter, the 31st, at 5 Afternoon

Sun enters ♋
 20th. 4 h. 17 m.
 Apparent Time.

1	F	David, Abp.	6	34	5	26	0	12
2	S	Chad. Bp.	6	32	5	28	1	13
3	F	Quadragesima. 1 Sunday in Lent	6	30	5	30	2	12
4	M		6	28	5	32	3	5
5	T	Princess of Hesse Born	6	26	5	34	3	53
6	W		6	24	5	36	4	36
7	T	Ember Week	6	22	5	38	5	10
8	F	Cyprian	6	20	5	40	5	rises
9	S		6	18	5	42	6	A 54
10	F	2 Sunday in Lent. Reminiscere	6	16	5	44	8	15
11	M		6	14	5	46	9	34
12	T	Gregory	6	12	5	48	10	49
13	W		6	10	5	50	11	59
14	T		6	8	5	52		Morn.
15	F		6	6	5	54	0	59
16	S		6	4	5	56	1	54
17	F	3 Sunday in Lent. St. Patrick	6	2	5	58	2	41
18	M		6	0	6	0	3	20
19	T	Princess LOUISA Born	5	58	6	2	3	52
20	W	Carthbert	5	56	6	4	4	20
21	T	Benedict	5	54	6	6	4	46
22	F		5	52	6	8	5	8
23	S		5	50	6	10	5	set
24	F	4 Sund. in Lent. Midlent Sunday	5	48	6	12	7	A c
25	M	Lady-Day. Prince Edward Born	5	46	6	14	8	
26	T		5	44	6	16	9	
27	W		5	42	6	18	10	1
28	T		5	40	6	20	11	1
29	F		5	39	6	21		Morn
30	S		5	37	6	23	0	1
31	F	5 Sunday in Lent	5	25	6	25	1	

Days	L. of Day	Day inc.	D. breaks	f.w. ends	C. bef.	S.	Sun's Dec.	1st Mars							
1	10	52	3	8	4	43	7	17	12	45	7	S.	45	4	A
6	11	12	3	28	4	32	7	28	11	38	5	35	4	2	
11	11	32	3	48	4	21	7	39	10	20	3	38	4		
16	11	52	4	8	4	11	7	49	8	54	1	36	3	4	
21	12	12	4	28	4	0	8	0	7	25	(N.	19	3	2	
26	12	31	4	47	3	48	8	12	5	52	2	17	3	1	

1754.

April hath XXX Days.

Full Moon, the 7th, at 8 Morning
 Last Quarter, the 14th, at 10 Morn.
 New Moon, the 22d, at 3 Afternoon
 First Quarter, the 30th, at 1 Morn.

Sun enters 8
 19th. 17 h. 22 m.
 Apparent Time.

1	V		5	33	6	27	1M	53
2	I		5	31	6	29	2	36
3	W		5	29	6	31	3	13
4	I	St. Ambrose	5	27	6	33	3	46
5	F	Old Lady-Day	5	25	6	35	4	17
6	S	Oxford and Camb. Terms End	5	23	6	37	4	46
7	F	6 Sunday in Lent. Palm-Sunday	5	21	6	39	5	rises
8	M		5	19	6	41	8	A 32
9	T		5	17	6	43	9	48
10	W		5	15	6	45	10	57
11	T	Maundy Thursday	5	13	6	47	11	53
12	F	GOOD-FRIDAY	5	11	6	49		Morn.
13	S		5	9	6	51	0	44
14	F	EASTER-DAY	5	7	6	53	1	28
15	M	Easter-Monday	5	5	6	55	2	3
16	T	Easter-Tuesday	5	3	6	57	2	32
17	W		5	1	6	59	2	58
18	T		4	59	7	1	3	21
19	F	Alphage.	4	57	7	3	3	44
20	S		4	55	7	5	4	7
21	F	1 Sunday after Easter. Low-Sunday	4	54	7	6	4	30
22	M		4	52	7	8	5	less
23	T	St. GEORGE	4	50	7	10	8	A 11
24	W	Oxford & Camb. Terms Begin	4	49	7	11	9	15
25	T	St. MARK, Evangelist	4	47	7	13	10	15
26	F	Duke of CUMBERLAND Born	4	45	7	15	11	10
27	S	Victory at Culloden	4	43	7	17		Midn.
28	F	2 Sunday after Easter	4	41	7	19		Morn.
29	M	From the Day of Easter in 15 Days	4	40	7	20	0	43
30	T	[1 Return	4	38	7	22	1	24

Days	L of D	Day inc.	D. breaks	Tw. ends	C. bef. S	Sun's Dec.	7 Stars So.
1	12 55	5 11	3 32	8 28	4 0	4N. 38	2 A 50
6	13 15	5 31	3 20	8 40	2 28	6 32	2 32
11	13 34	5 50	3 5	8 55	1 2	8 24	2 13
16	13 53	6 9	2 53	9 7	0A. 16	10 12	1 55
21	14 12	6 28	2 39	9 21	1 25	11 36	1 36
26	14 30	6 26	2 27	9 37	2 23	13 35	1 17

1754.

May hath XXXI Days.

Full Moon, the 6th, at 5 Afternoon
 Last Quarter, the 14th, at 3 Morning
 New Moon, the 22d, at 4 Morning
 First Quarter, the 29th, at 7 Morning

Sun enters II
 20th. 18 h. 19 m.
 Apparent Time.

1	W	St. Philip and Jacob. Term Begins	4	36	7	24	1	M	53
2	T		4	34	7	26	2		25
3	F	Inven. Cross	4	32	7	28	2		53
4	S		4	31	7	29	3		22
5	F	3 Sunday after Easter	4	30	7	30	3		52
6	M	From the Day of Easter in 3 Weeks	4	28	7	32			risen
7	T	[2 Return	4	27	7	33	8	A	42
8	W		4	25	7	35	9		42
9	T		4	23	7	37	10		38
10	F		4	22	7	38	11		26
11	S		4	20	7	40			Morn.
12	F	4 Sun. after Easter Old May-Day	4	19	7	41	0		3
13	M	From the Day of Easter in 1 Month	4	17	7	43	0		37
14	T	[3 Return	4	15	7	45	1		5
15	W		4	14	7	46	1		30
16	T		4	12	7	48	1		52
17	F		4	11	7	49	2		14
18	S		4	9	7	51	2		37
19	F	5 Sun. after Easter. Rogat. Sunday	4	8	7	52	3		2
20	M	From the Day of Easter in 5 Weeks	4	6	7	54	3		30
21	T	[4 Return	4	5	7	55	3		59
22	W		4	3	7	57			few
23	T	Holy Thursday.	4	2	7	58	9	A	6
24	F	P. Fr. Wil. Bern. On the Morrow	4	1	7	59	9		59
25	S	[of the Asc. 5 Ret.	4	0	8	0	10		46
26	F	6 Sunday after Easter	3	59	8	1	11		26
27	M	Term Ends	3	58	8	2			Morn.
28	T		3	57	8	3	0		1
29	W	King Charles II. Restoration	3	56	8	4	0		29
30	T	Oxford & Cambridge Terms End	3	55	8	5	0		57
31	F		3	54	8	6	1		24

Days	L. of D.	Day inc.	D. breaks	Tw. ends	C. aft. S.	Sun's Dec.	7 Stars So.
1	14 48	7 4	2 6	9 55	3 8	15 N. 9	0 A 58
6	15 5	7 24	1 51	10 11	3 41	16 36	0 39
11	15 21	7 37	1 29	10 34	3 59	17 56	0 20
16	15 36	7 52	1 6	10 57	4 2	19 10	0 00
21	15 50	8 6	0 30	11 40	3 51	20 14	11 M 41
26	16 3	8 19	No Night	No Night	1 26	21 11	11 31

Full Moon, the 5th, at 3 Morning.
 Last Quarter, the 12th, at 9 Aftern.
 New Moon the 20th, at 3 Aftern.
 First Quarter, the 27th, at 11 Morn.

Sun enters 3
 21st. 3h. 20m.
 Apparent Time.

1	S	Nicm. Pr. & M.	3	52	8	0	1	M	52
2	F	Whit-Sunday	3	51	8	9	2		22
3	M	Whit Monday	3	50	8	10	2		56
4	T	Whit-Tuesday. Pr. WALES Born	3	49	8	11	2		36
5	W	Ember-Week	3	48	8	12	3	After	
6	T		3	48	8	12	9	A	17
7	F		3	47	8	13	10		0
8	S		3	47	8	13	10		35
9	F	Trinity Sunday	3	46	8	14	11		4
10	M	Prs. Amelia & Carol. Born [1 Ret.	3	46	8	14	11		30
11	T	S. Barnabas. Om. mor. of H. Trin.	3	45	8	15	12		54
12	W	Ofort and Camb. Terms Begin	3	45	8	15		Morn	
13	T	Corpus CHRISTI	3	44	8	16	0		17
14	F	Term Begins	3	44	8	16	0		37
15	S		3	44	8	16	1		0
16	F	1 Sunday after Trinity	3	43	8	17	1		25
17	M	St. Alban. In 8 Days of H. Trin.	3	43	8	17	1		55
18	T	[2 Return	3	43	8	17	2		28
19	W		3	42	8	18	3		38
20	T		3	42	8	18	3		38
21	F		3	42	8	18	3		38
22	S	King GEORGE II. Inaug.	3	43	8	17	9		20
23	F	2 Sunday after Trinity	3	43	8	17	9		56
24	M	St. JOHN Bapt. Midsummer-Day	3	43	8	17	10		29
25	T	From the day of H. Trin. in 15 days	3	43	8	17	10		57
26	W	K. GEORGE II. Pro. [3 Ret.	3	44	8	16	11		24
27	T		3	44	8	16	11		53
28	F		3	44	8	16		Morn.	
29	S	St. PETER, and St. PAUL	3	45	8	15	0		22
30	F	3 Sunday after Trinity	3	45	8	15	0		54

Days	L. of Day	Day inc.		C. after S.	Sun's Dec.	Stars So.		
1	16	16	8 32	No real Night	2	43	22 N 16	10 M 56
6	16	24	8 40	but conf. Day-	1	54	22 41	10 35
11	16	30	8 46	light or Twil.	0	58	23 6	10 16
16	16	34	8 49	No real Night	0 bef.	4	23 24	9 55
21	16	35	8 51	but conf. Day-	1	7	23 29	9 34
26	16	34	Decr. 2	light or Twil.	2	12	23 24	9 14

No real Night
 but conf. Day-
 light or Twil.

No real Night
 but conf. Day-
 light or Twil.

1754.

July hath XXXI Days.

Full Moon, the 4th, at 1 Afternoon

Last Quarter, the 12th, at 2 Afternoon

New Moon, the 19th, at Midnight

First Quarter, the 26th, at 4 Afternoon

Sun enters ♋
22d. 14h. 19m
Apparent Time.

1 M	Prom day of H. Tr. in 3 Weeks, 4 Ret	3	46	8	14	1 M	3
2 T	Vis't. B. V. Mary. Cambridge Com.	3	46	8	14	2	1
3 W	Term Ends	3	47	8	13	3	
4 T		3	47	8	13	3	14
5 F	Old Midsummer-Day	3	48	8	12	8 A	2
6 S		3	49	8	11	9	
7 F	4 Sunday after Trinity	3	50	8	10	9	2
8 M	Oxford Act	3	50	8	10	9	5
9 T		3	51	8	9	10	1
10 W		3	52	8	8	10	3
11 T		3	53	8	7	11	
12 F		3	54	8	6	11	2
13 S		3	55	8	5	11	4
14 F	Sunday after Trinity	3	56	8	4	Morn	
15 M	Savitine	3	57	8	3	0	2
16 T		3	58	8	2	0	5
17 W		3	59	8	1	1	4
18 T		4	C	8	0	2	3
19 F		4	2	7	58	C	12
20 S	Margaret	4	3	7	57	7 A	5
21 F	6 Sunday after Trinity	4	4	7	56	8	2
22 M	Magdalen. Ps. Carol. Mat. Born	4	6	7	54	8	5
23 T		4	7	7	53	9	2
24 W		4	8	7	52	9	5
25 T	St. JAMES, Apollie	4	10	7	50	10	2
26 F	St. Anne, Mother of the Virg. Mary	4	11	7	49	10	5
27 S		4	13	7	47	11	2
28 F	7 Sunday after Trinity	4	14	7	46	Morn	
29 M		4	15	7	44	0	
30 T	Dog-Days Begin	4	17	7	43	0	
31 W		4	18	7	42	1	

Days	L. of Day	Day dec.	D. breaks	Tw. ends	C. bef.	S. Sun's Dec.	7 Stars
1	16 29	0 6			3	12	23 N 9 8 M
6	16 23	0 12	No real	No real	4	7	22 43 8
11	16 15	0 20			4	12	22 9 8
16	16 5	0 30	Night.	Night.	5	17	21 20 7
21	15 53	0 48			5	49	20 30 7
26	15 39	0 56	0 48	11. 2	5	57	19 23 7

1754.

August hath XXXI Days.

Full Moon, the 3d, at 2 Morning
 Last Quarter, the 11th, at 6 Morning
 New Moon, the 18th, at 8 Morning
 First Quarter, the 24th, at 11 Aftern.

Sun enters $\cap$
 22d. 20 h. 36 m.
 Apparent Time.

1	T	Lammas-Day	4	19	7	41	2	M	45
2	F		4	21	7	39	3		48
3	S		4	22	7	38	4	☾	rises
4	F	8 Sunday after Trinity	4	24	7	36	7	A	54
5	M		4	25	7	35	8		19
6	T	Transfiguration	4	27	7	33	8		42
7	W		4	28	7	32	9		4
8	T		4	30	7	30	9		27
9	F		4	32	7	28	9		53
10	S	Laurence	4	34	7	26	10		22
11	F	9 S. after Trinity. Ps. <i>Augusta</i> Born	4	35	7	25	10		55
12	M	Old Lammas-Day	4	37	7	23	11		34
13	T		4	39	7	21		Morn.	
14	W		4	40	7	20	0		22
15	T	Assump. Virgin Mary	4	42	7	18	1		18
16	F		4	44	7	16	2		23
17	S		4	46	7	14	3		37
18	F	10 Sunday after Trinity	4	47	7	13	4	☾	fets
19	M		4	49	7	11	7	A	28
20	T		4	51	7	9	7		59
21	W		4	53	7	7	8		30
22	T		4	55	7	5	9		2
23	F		4	57	7	3	9		36
24	S	St. Bartholomew, Apostle	4	59	7	1	10		14
25	F	11 Sunday after Trinity	5	1	6	59	10		58
26	M		5	2	6	58	11		49
27	T		5	4	6	56		Morn.	
28	W	Augustine.	5	6	6	54	0		45
29	T	St. John the Baptist Beheaded	5	8	6	52	1		44
30	F		5	10	6	50	2		47
31	S		5	12	6	48	3		51

Days	L. of D.	Day dec.	D. breaks	Tw. ends	C. bef. S.	Sun's Dec.	7 Stars So.
1	15 22	1 13	1 23	10 36	5 48	18 N. 3	6 M 48
6	15 6	1 29	1 43	10 15	5 22	16 43	6 29
11	14 48	1 45	2 2	9 57	4 43	15 17	6 10
16	14 32	2 3	2 19	9 40	3 51	13 45	5 51
21	14 14	2 21	2 34	9 25	2 45	12 7	5 32
26	13 55	2 40	2 49	9 10	1 26	10 25	5 14

1754.

September hath XXX Days.

Full Moon, the 1st, at 5 Afternoon
 Last Quarter, the 9th, at 9 Afternoon
 New Moon, the 16th, at 4 Afternoon
 First Quarter, the 23d, at 9 Morning

Sun enters $\approx$
 22d. 16 h. 48 m.
 Apparent Time.

1	S	12 Sunday after Trinity. Giles	5	14	6	46	6	A	29
2	M	LONDON Burnt, in 1666. O. S.	5	16	6	44	6		52
3	T		5	17	6	43	7		15
4	W		5	19	6	41	7		38
5	T		5	21	6	39	8		4
6	F	Dog-Days End	5	23	6	37	8		32
7	S		5	25	6	35	9		3
8	F	13 Sunday after Trinity	5	27	6	33	9		41
9	M		5	29	6	31	10		25
10	T		5	31	6	29	11		15
11	W		5	33	6	27			Morn.
12	T		5	35	6	25	0		13
13	F		5	37	6	23	1		23
14	S	Holy-Rood Day	5	39	6	21	2		37
15	F	14 Sunday after Trinity	5	41	6	19	3		56
16	M		5	43	6	17			sets
17	T	Lambert	5	45	6	15	6	A	34
18	W		5	47	6	13	7		
19	T	Ember Week	5	49	6	11	7		4
20	F		5	51	6	9	8		20
21	S	St. MATTHEW, Apostle	5	53	6	7	9		
22	F	15 Sunday after Trinity	5	55	6	5	9		50
23	M		5	57	6	3	10		50
24	T		5	59	6	1	11		4
25	W		6	1	5	59			Morn.
26	T	Cyprian	6	3	5	57	0		4
27	F		6	5	5	55	1		5
28	S		6	7	5	53	2		5
29	F	16 Sund. after Trinity. St. Michael	6	9	5	51	3		5
30	M		6	11	5	49			5

Days	L. of D.	D. dec.	D. breaks	Tw. ends	C. aft. S.	Sun's Dec.	Stars S.
1	13 32	3 3	3 6	8 53	0 20	8 N. 16	4 M. 52
6	13 34	3 21	3 20	8 39	1 56	6 25	4 34
11	12 54	3 41	3 33	8 25	3 36	4 31	4 16
16	12 34	4 1	3 44	8 15	5 22	2 36	3 58
21	12 14	4 21	3 55	8 4	7 5	0 39	3 41
26	11 54	4 41	4 6	7 52	8 43	1 S. 33	3 23

1754.

October hath XXXI Days.

Full Moon, the 1st, at 10 Morning
 Last Quarter, the 9th, at 9 Morning
 New Moon, the 16th, at 1 Morning
 First Quarter, the 22d, at 1 Aftern.
 Full Moon, the 30th, at 4 Morning

Sun enters M
 23d. o h. 23 m.
 Apparent Time.

1	T	Remigius	6	12	5	48	5	A	53
2	W		6	14	5	46	6		19
3	T		6	16	5	44	6		45
4	F		6	18	5	42	7		14
5	S		6	20	5	40	7		49
6	F	17 Sunday after Trinity	6	22	5	38	8		29
7	M		6	24	5	36	9		17
8	T		5	26	5	34	10		10
9	W	St. Dennis	6	28	5	32	11		14
10	T	Old Mich. Day. St. and Camb.	Term	Beg.			Morn.		
11	F		6	32	5	28	0		24
12	S		6	34	5	26	1		38
13	F	18 Sunday after Trinity	6	36	5	24	2		57
14	M		6	38	5	22	4		17
15	T		6	40	5	20	5		37
16	W		6	42	5	18	6	fets	
17	T	Etibaldred, Virgin.	6	44	5	16	6	A	21
18	F	St. LUKE, Evangelist	6	46	5	14	7		2
19	S		6	48	5	12	7		51
20	F	19 Sunday after Trinity	6	50	5	10	8		46
21	M	Ursula	6	52	5	8	9		46
22	T	King GEORGE II. Crown'd	6	54	5	6	10		48
23	W		6	56	5	4	11		51
24	T		6	58	5	2	Morn.		
25	F	Gripin	7	0	5	0	0		53
26	S		7	2	4	58	1		58
27	F	20 Sunday after Trinity	7	4	4	56	2		59
28	M	St. SIMON and St. JUD	7	6	4	54	4		1
29	T		7	7	4	53	5		4
30	W		7	9	4	51	6		6
31	T		7	11	4	49	7		9

Days	L. of Day	Day dec.	Aberrats	Tw. ends	C. aft.	S.	Sun's Dec.	7 Stars So.
1	11 36	4 59	4 18	7 42	10 26	3 S	14	3 M 5
6	11 16	5 19	4 29	7 31	11 56	5	11	2 47
11	10 56	5 39	4 39	7 21	13 16	7	6	2 28
16	10 36	5 59	4 49	7 11	14 25	8	58	2 9
21	10 17	6 18	4 58	7 1	15 19	10	47	1 51
26	9 47	6 37	5 7	6 52	15 55	12	32	1 32

1754.

November hath XXX Days.

Last Quarter, the 7th, at 8 Afternoon
 New Moon, the 14th, at 11 Morning
 First Quarter, the 21st, at 5 Afternoon
 Full Moon, the 29th, at 9 Afternoon

Sun enters ♄
 21st, 20 h. 14 m.
 Apparent Time.

1	F	All Saints	7	12	4	48	5	A	55
2	S	Prs. of <i>Orange</i> Born. All Souls	7	14	4	46	6		33
3	F	21 Sunday after Trinity	7	15	4	45	7		18
4	M	On the morrow of All Souls, 1 Ret.	7	17	4	43	8		10
5	T	Powder Plot	7	19	4	41	9		10
6	W	Michaelmas Term Begins	7	21	4	39	10		14
7	T	Prince <i>Henry Frederick</i> born	7	23	4	37	11		22
8	F		7	25	4	35		Morn	
9	S	LORD-MAYOR's Day at <i>London</i> .	7	27	4	33	0		39
10	F	22 S. aft. Trin. K. GEORGE II. Born	7	29	4	31		1683.	
11	M	<i>Martin</i>	7	30	4	30	3		16
12	T	On the morrow of St. Martin, 2 Ret.	7	31	4	29	4		33
13	W		7	33	4	27	5		53
14	T		7	35	4	25		5	53
15	F		7	36	4	24	5	A	36
16	S		7	38	4	22	6		29
17	F	23 Sunday after Trinity	7	39	4	21	7		20
18	M	In eight days of St. Martin, 3 Ret.	7	41	4	20	8		30
19	T		7	42	4	18	9		33
20	W	<i>Edmund</i> , King and Martyr	7	43	4	17	10		39
21	T		7	45	4	15	11		41
22	F	<i>Cecilia</i> , Old Martinmas-Day	7	47	4	13		Morn.	
23	S	<i>Clement</i>	7	48	4	12	0		46
24	F	24 Sunday after Trinity.	7	49	4	11	1		49
25	M	Prince <i>William Henry</i> Born. In 15	7	50	4	10	2		50
26	T	[days of St. Martin, 4 Ret.	7	51	4	9	3		50
27	W		7	52	4	8	4		53
28	F	Term Ends	7	53	4	7	5		57
29	F		7	54	4	6		5	57
30	S	St. Andrew. Ps. Dow. <i>Wales</i> Born.	7	56	4	4	5	A	8

Days	L. of Day.	Day dec.	D. breaks	Twa. ends	C. aft.	S.	Sun's Dec.	7 Stars So.	
1	9	56	5	16	6	44	14	S 32	1 M 9
6	9	18	7	37	6	37	16	7	0 49
11	9	0	7	55	5	30	15	42	0 29
16	8	44	7	50	5	36	14	54	0 8
21	8	30	8	5	5	42	13	46	11 43
26	8	18	8	17	5	48	12	18	11 27

1754. December hath XXXI Days.

Last Quarter, the 7th, at 5 Morning
 New Moon, the 13th, at 11 Aftern.
 First Quarter, the 21st, at 2 Afternoon
 Full Moon, the 29th, at 1 Afternoon

Sun enters vj
 21st. 8 h 18 m.
 Apparent Time.

1	F	Advent Sunday	7	57	4	3	5	A 58
2	M		7	58	4	2	6	55
3	T		7	59	4	1	7	54
4	W	Barbara.	8	0	4	0	9	7
5	T		8	1	3	59	10	19
6	F	Nicholas	8	2	3	58	11	33
7	S		8	3	3	57	Morn.	
8	F	2 Sunday in Advent	8	3	3	57	0	47
9	M		8	4	3	56	2	4
10	T		8	5	3	55	3	21
11	W		8	5	3	55	4	30
12	T		8	6	3	54	5	53
13	F	Lucy	8	6	3	54	D sets	
14	S		8	7	3	53	4	A 57
15	F	3 Sunday in Advent.	8	7	3	53	5	59
16	M	O Sapientia.	8	7	2	53	7	4
17	T	Oxford and Camb. Terms End	8	8	3	52	8	8
18	W	Ember Week	8	8	3	52	9	14
19	T		8	8	3	52	10	20
20	F		8	8	3	52	11	23
21	S	St. THOMAS. Shortest Day	8	8	3	52	Morn.	
22	F	4 Sunday in Advent	8	8	3	52	0	24
23	M		8	8	3	52	1	25
24	T		8	8	3	52	2	28
25	W	CHRIST-MASS-DAY.	8	8	3	52	3	31
26	T	St. STEPHEN	8	7	3	53	4	32
27	F	St. JOHN, Evangelist	8	7	3	53	5	3
28	S	Innocents	8	7	3	53	6	31
29	F	1 Sunday after Christmas	8	6	3	54	D rises	
30	M		8	6	3	54	5	A 3.
31	T	Sylveſter	8	5	3	55	6	36

Days	L. of D.	D. dec.	D. bre.	ks	Tw. end.	C. aft. S.	Sun's Dec.	7 Stars So.
1	8 6	8 19	5	54	6 6	10 31	21 S. -7	11 A 1
6	7 57	8 58	5	57	6 3	8 27	22 31	10 39
11	7 50	8 45	5	53	6 2	6 12	23 4	10 17
16	7 46	8 49	5	59	6 1	3 49	23 21	9 55
21	7 44	8 51	6	0	6 0	1 18	23 29	9 33
26	7 46	Inc. 2	5	59	6 1	1 bef. 13	23 22	9 11

Chronological Notes for the Year 1754.

Golden Number	—	7	Shrove Tuesday	—	Feb. 26.
Cycle of the Sun	—	27	Easter Day	—	Apr. 14.
Epaſt	—	6	Whit-Sunday	—	May 2.
Roman Indiction	—	2	Trinity-Sunday	—	May 9.
Dominical Letter	—	F	Advent-Sunday	—	Nov. 1.

The Eclipses in 1754, calculated by Mr. *Ralph Huſſe*; ſhewing in what Parts of the Earth They will be viſible, &c.

There will happen fix Eclipses this Year; but, what is remarkable, not one of them will be viſible to any Part of *Great Britain*, or *Ireland*: At other Places They will be ſeen according to the following Order.

1. *March 23^d* at 6 Afternoon, the ☉ is 2 Digits eclips'd on the North Side, vertical to a little Sea, Weſt of *Terra Firma*, Lat. 8° North, Long. 90° W. Viſible in *North America*.

2. *April 7th* at 4 in the Morning, the ☽ is eclipsed totally 21 Digits, vertical to the Eaſtern Borders of *Peru*, Lat. 6° South, Long. 70° Weſt. Viſible to all *America*.

3. *April 22^d* at 10 in the Morning the Sun is 2 Digits eclipsed on the South Side, vertical to the Eaſtern Parts of *Nigritia* in *Africa*; Lat. 12° North, Long. 30° Eaſt. Viſible to the Southern Seas.

4. *Sept. 16th* at 1 Afternoon, the ☉ is eclipsed in π 23°, towards the Eaſtern Ocean, beyond the *Phillipine Iſlands*; Lat. 3° North, Long. 163° Eaſt. This Eclipse is, ſtill, leſs than the former.

5. *Oct. 1st* at 6 in the Morning, the Moon is totally eclipsed 21 Digits in γ 8°. viſible to all *America*, vertical to the Sea Weſt of *Panama*, Lat. 3° North, Long. 90° Weſt.

6. *Oct. 16th* at 1 in the Morning, the Sun is eclipsed 2 Digits on the North Side in $\sphericalangle$ 22°, vertical to *Madagcar*, Lat. 8° South, Long. 130° Weſt. Viſible within the Artic Circle.

Ralph Huſſe.

As we do not know what Tables Mr. *Huſſe* made uſe of in theſe Calculations, we cannot ſatisfy the Publick in that Particular, nor take upon us to judge of their Exactneſs, not having made any Calculations of theſe Eclipses ourſelves, as They will be all inviſible to us.

A Table for finding the Times of Rising; Southing, and Setting of the principal Fix'd Stars; by shewing how much those Times happen before, or after the Southing of the Seven Stars.

Names of the Stars.	N ^o	Time of Rising		Time of Southing		Time of Setting.		Meridian Altitude.	
		H	M	H	M	H	M	°	'
The Scorpion's Heart, <i>Antares</i>	1	14	b 52	11	b 17	7	b 42	12	40
Bright Star in the Harp, <i>Lyra</i>	1			9	b 4	never sets		77	2
Bright Star in the Eagle, <i>Atair</i>	1	14	b 39	7	b 53	1	b 7	46	42
Bright Star in the Southern } Fifth, <i>Fomalhaut</i>	2	7	b 39	4	b 48	1	b 57	7	39
Bright Star in Aries	2	9	b 49	1	b 40	6	a 29	60	46
Brightest of the Seven Stars	3	8	b 16	00	00	8	a 16	61	48
Bull's Eye, <i>Aldabaran</i>	1	6	b 40	0	a 49	8	a 18	54	28
<i>Capella</i>	1			1	a 25	never sets		84	12
Foot of Orion, <i>Rigel</i> .	1	3	b 40	1	a 30	6	a 50	30	0
Middle Star in Orion's Girdle	2	4	b 6	1	a 51	7	a 48	37	6
Bright Star in Orion's Shoulder, <i>Betelgeuse</i>	1	4	b 32	2	a 9	8	a 50	45	49
Great Dog Star, <i>Sirius</i>	1	1	b 36	3	a 1	7	a 38	22	8
<i>Castor</i> } in the Twins	1	5	b 55	3	a 44	13	a 23	67	4
<i>Pollux</i> }	2	5	b 2	3	a 57	12	a 56	70	52
Little Dog Star, <i>Procyon</i>	2	2	b 40	3	a 53	10	a 26	44	20
Cor Hydra	2	0	a 16	5	a 41	11	a 6	32	53
Cor Leonis, <i>Regulus</i>	1	0	b 51	6	a 21	13	a 33	51	38
Lion's Tail, <i>Deneb</i>	2	0	a 34	8	a 32	15	a 30	54	25
Virgin's Spike	1	4	a 24	9	a 37	14	a 50	28	37
<i>Arcturus</i>	1	2	a 33	10	a 30	18	a 27	58	59

For an Example of the Use of the above Table, let the Time of the Rising of the Great Dog Star, on *January 1*, be demanded. First, looking against the proposed Day, in the Kalendar, the Time of the Southing of the Seven Stars appears to be 8 H. 43 M. after Noon. From which subtract 1 H. 36 M. (found in the Table,) the Remainder 7 H. 7 M. is the true Time required. If you would know the Time of the Setting of the same Star, then 7 H. 38 M. must be added to 8 H. 43 M; which gives 16 H. 21 M. answering to 21 M. after 4 the next Morning.

Note, Every Star rises and sets about 4 Minutes earlier each Day than on the preceding Day.

NEW ÆNIGMAS to be ANSWERED in the Next Year's Diary.

I. Ænigma 363 by Sir Jacob Hopper, Knight.

THE Bards who wrote in Times of old,
Of many strange Productions told:
Of Broods of Harpies, and the Snake
That took it's Rise from *Lerna Lake*;
Of Sphinxes too, and Gorgons dire,
And fell Chimeras breathing Fire.
Strange Monsters! hard to be reduc'd to
Aught Tribe or Species we are us'd to.
Of *Cerberus* They likewise tell,
The triple-headed Dog of Hell;
With Deities enough to fright one,
Sylvanus, Faunus, Pan and *Triton*,
Triton the Trumpeter, an odd Fish,
With human Face and Tail of Cod-Fish.
Wild Mixtures! yet you may in me
A stranger Composition see;
Old *Chiron* was half Man, half Horse,
The *Minotaur* still something worse;
But view my Frame, and then judge whether
I don't exceed them both together.
In me you'll find what's worth your seeing,
A triple, strange, compounded Being,
As for the Sphynx and Harpy Race,
Like them I boast an Angel's Face;
But tho' endu'd with Fire and Fury,
I'm no Chimera, I'll assure you.
In Nature strangely I'm divided
And tho' by Instinct chiefly guided,
To Reason I have fair Pretence,
And claim a double Share of Sense;
Yet underhand I must confess,
Tho' more than Man, I'm something less;
And for the most part, needs must pass
For little better than an Ass.
Yet some, perhaps, would claim Alliance,
But know I bid them all Defiance,
And to exclude such vain Pretenders,
I'm altogether of all Genders;
Both Male and Female, common too;
A seeming Paradox, but true.

Once I was rare, but now I own
 I'm common and familiar grown;
 People new view me far and near
 Without Astonishment or Fear.
 For we pass over and despise
 What's obvious and before our Eyes;
 While what we think a rare Invention
 Soon gains our Wonder and Attention.
 Had I appear'd at *Troy*, my Dread
 Must quickly through that State have spread,
 For such a Prodigy as I am
 Had shaken the whole Realm of *Priam*:
 Whole Hecatombs, in many a Nation,
 Had not suffic'd for Expiation.
 —Frame to yourselves, the Poet begs,
 A three back'd Monster with eight Legs,
 Plac'd like no Animal's alive,
 On this Side three, on th' other five.
 Then range the World, look round all Nature
 And say—What Prodigy is greater.

II. Ænigma 364. by Mr. Ralph Hulse.

Before th' Ætherial Orbs their Dance began,
 Or sacred Love a Council held for Man;
 Before the Birth of either Time or Place,
 I reign'd despotic o'er the boundless Space:
 But tho' I did my ancient Lot resign,
 Half the Domain of this vast Globe is mine;
 To me the Stars their native Lustre owe,
 And drowsy Mortals their Repose below.
 Me Poets love, and subtle Statesmen prize,
 When They would screen a Project from the Eyes;
 By which the *British* Fair may solve my Name,
 And shew to what a Title I lay claim.

III. Ænigma 365. by Anthony Shallow Esq.

Armed with Death insidious, I betray,
 And Thousands perish by my ruthless Sway:
 Prepar'd I wait to crush, in fatal Hour,
 Th' unwary Wretch that falls within my Pow'r.
 Yet am no Beast of Prey, that thirsts for Blood;
 I am Man's Friend; and like his own my Food.
 Yet in my direful Jaws Destruction reigns,
 And struggling Victims strive for Life in vain.
 But these, a miscreant Race that lawless roam,
 Spoil, waste, and ravage, wheresoe'er they come;

To Learning Foes, curst Objects of your Spite,
Vile, skulking, Fugitives that shun the Light:
Yet dare profanely the chaste Fair surprize,
With rude Attempt, unmoved by their Cries.
Such are th' atrocious Caitifs we annoy;
'Tis for your Sakes, *dear Ladies*, we destroy.

IV. *Ænigma 366. by Amanuensis.*

Nature the richest of her Treasures gave,
The artful Structure of my Frame to build;
Tho' I no proper Life or Motion have,
Mankind to me their awful Homage yield.
Best Part of Kings imprison'd are by me;
To give me Place they gladly think it fit,
When Rivals seek to give them Liberty
They'll fight and die for fear of gaining it.
The *Hands* that made me ne'er my Right possess,
The *Hands* that gave me ne'er my *Owners* were,
Nor they who win me hardly e'er can guess
How dearly bought their wish'd for Conquests are.

V. *Ænigma 367. by Mr D. Davis, Master of the Boarding School at Burley, in Gloucestershire.*

Let Kings and Tyrants boast no more
Of Vassals and Despotic Pow'r;
By Nature's Law to me is given
The greatest Power under Heaven:
The proudest Monarchs I confine,
Who silently themselves resign,
And own Obedience (by a Nod)
To me, more than a Demi-God.
So universal is my Sway,
That High and Low my Laws obey,
Yet least of all the Industrious Few,
Who oft withhold the Tribute due,
Yet own my Pow'r and bless it too. }
When Strife tumult'ous threatens high,
None can appease 't so well as I.
When Arguments successless prove
Nor Duty, Gratitude, nor Love }
The jarring Contest can remove,
By softest Means (such is my Pow'r)
I calm the Rage and Peace restore.

But tho' such Wonders I perform,
 (To still a Tempest, lay a Storm)
 Before Intemp'rance Footing gain'd
 My Empire was where Darkness reign'd;
 But now bright Sol, with blushing Ray,
 Is Witness of my potent Sway.
 Nay more (tho' 'tis a Shame to tell)
 I'm in the Temple known too well,
 But in the Play House seldom dwell. }
 If more of me you seek to know,
 Enquire not of the Sons of Woe,
 But of the Happy, and the Gay;
 Who to me ready Homage pay;
 Tho' while They in my Pow'r remain,
 Shou'd you enquire, 'twill be in vain.

VI. Ænigma 368. by Mr. J. Willimott.

In Eastern Climes, where ancient *Nilus* laves
 The neighb'ring Plains with his nutritious Waves,
 I first appear'd on Earth, and there began
 To execute my Vengeance upon Man;
 Whom I oppress'd with wide-destroying Hand,
 Nor could all earthly Help my Pow'r withstand.
 Six Letters form my Name: But, what is strange,
 In losing Two, I suffer little Change;
 The difference only this,—when Six I had,
 Where e'er my quick-destroying Hand I laid,
 The Mortal Wretch was well, was sick, was dead. }
 Possess'd of only Four,—I cannot kill,
 Yet I remain Man's sore Tormentor still.
 But what's most strange, tho' I've two Letters less,
 Yet I in Syllables receive Increase.
 Let this suffice, I dare not tell you more;
 Guess the six Letters, and you'll know the Four.

VII. Ænigma 369. by Mr. James Dowse of Fiskerton.

Who is my Sire? And what am I?
 He ne'er was born, I never die:
 He suffers Death, like Mortal Man;
 From Pain secure, I still remain.
 High in the Air I'm often seen,
 And often on the verdant Green;
 Still, faithful, on my Sire attend,
 And all his Purposes befriend;
 'Till thrust out by a younger Brother:
 Then I'm compell'd to serve Another;

To Mankind then I yield support;
 Who greatly my Assistance court:
 Nor do their secret Thoughts conceal,
 Which I, in silence, still reveal.
 But I expose myself too bare;
 You may from hence my Name declare.

PRIZE ÆNIGMA, by Sir *Jacob Hopper*, Knight.

Unhappy me! that long before my Birth
 Lay dormant in my Tomb, for Ages lay
 Unseen, unheard of, deep envelop'd round
 In thickest Gloom and uncongenial Night.
 What others at the fatal Close of Life
 Are doom'd to undergo, I Wretch endur'd
 Long ere I saw the joyous Face of Morn.
 The Sun mean-time his annual Course perform'd,
 Seasons return'd and Nature persever'd
 Jocund in all her gay Variety:
 While I in depth of Darkness lay conceal'd
 Far from the Fields of Æther, waiting still
 Some plastic Hand to bring me forth to Day.
 At last I came; and from my Prison-house,
 Cumbersome, unweildy, freed, upright I rose
 Welcom'd to Day-light by th' admiring Crowd.

But whence I gain'd my wond'rous Form and Air,
 What Art Promethean fram'd me, must remain
 For ever doubtful: Man indeed, vain Man,
 Thinks me his Offspring: Paradox most strange;
 For I existed long before my Parent,
 (If such he be)—'Tis true, Man kindly lent
 His Hand obstetric; by his Means, releas'd,
 I rose to Day, and to Perfection came.
 Lifeless I seem, yet not devoid of Passion:
 With Pride I often swell, or lowly bend
 Humble and meek, or witness deadly Woe.
 With Love I languish, or with Pity melt
 And soft Compassion, but my Looks deceive,
 And all is false and hollow; for within
 I bear a stony Heart, and cruel once
 Slew my Adorer, as he prostrate lay
 And Incense offer'd at my faithless Shrine*.

Many there are that ape me, but in vain.
 Some of Vulcanian Frame, that menace stern
 In native Armour. Others much more mild
 Of Sylvan Race—Dryad and Hamadryad.

* *Vide Theocrit.*

B 4

Not

Not unlike Those, of whom the Poets sing,
 A hardy Offspring, That in Time of old
 Sprung from the mountain Oak or tow'ring Pine.
 One 'mong the rest mis-shapen and deform'd,
 Obstrep'rous too and loud, and big with Riot,
 Void of all Fear and Rev'rence fain with me
 Would claim Alliance: impotent of Mind,
 And vain Presumption! but what must we not
 Expect from him Audacious, Insolent,
 Ut'r'er of Libels foul, and Jest's obscene,
 That still abuses and disturbs his Betters,
 Nor spares the sacred Synod nor the Senate;
 That spurns at Men and Gods, and dares affront
 The Majesty of *Sheba*? But to him
 In no Relation bear; 'tho' by Man's Art
 Abus'd, I sometimes with a Harlot's Mien
 Naked and shameless flare in open Day,
 And prostitute my Beauties. Mute I am,
 Nor know the Gift of flowing Eloquence:
 Yet want not winning and persuasive Ways
 To captivate the Soul, and hold it fix'd
 In pleasing Admiration. Some believe
 That I can charm the Grave by Energy
 And hidden Influence: hence to me they fly
 To sooth those Sorrows, they but keep alive,
 Misjudging thro' Affection. I alas!
 Do but adorn Death's Triumph and enhance
 Those very Sorrows I am sought to cure.
 Thus by a strange Vicissitude of Fate,
 Back I return from whence I first arose,
 A sad Appendage to the silent Tomb.

Whoever truly answers this Ænigma before *Candlemas Day*, has a
 Chance for 10, and another for 8 Diaries.

NEW QUÆRIES, to be answered next Year.

Quære I. by Solon.

What is Happiness?

Quære II. by the same.

Whether, mere People in the World are not unhappy by the Folly of
 indulging, and brooding over gloomy, and disagreeable Ideas, and being
 anxious about Trifles, than from *any real Cause*, or through the unavoid-
 able Misfortunes of Life.

Quære

Quere III. by T. B.

Is a great Estate with a weak Constitution, or a vigorous State of Body with a slender Fortune, to be preferred?

Quere IV. by Ariadne.

Whether, the pretending Love to, and keeping Company with several Women at the same Time (so much practis'd by the Country Beaux) and thereby, wantonly, robbing an innocent, unexperienced Virgin of her Peace of Mind (and too often of her Character) has not something in it very cruel and inhuman? And, whether she; who, after knowing the true Character of such Pretenders, admits of their addresses, does not justly forfeit the good Opinion, not only of Men of Sense and Honour, but also of the prudent and virtuous Part of her own Sex?

PRIZE QUERE, by Philosophicus.

To what Height in the Air may we reasonably suppose Exhalations, raised by the Sun, do ascend, when in the most rarified State?

Whoever answers the same before Candlemas-Day, has a Chance for 6 Diaries.

A REBUS, by Mr. James Robinson.

A Thing that to Debtors oft gives much Offence,
With one Third of a King who hath Virtues immense,
To these add the Sign of the Vocative Case,
Then half a Denial put in the next Place.
These Hints rightly taken, you thence may infer,
Where liveth; at present, your Servant,

J. R.

*New QUESTIONS to be ANSWERED in the next.
YEAR'S DIARY.*

I. QUESTION 376, by Rusticus.

AN honest Man a Horse did buy,
That was both lame and poor:
A Golden Guinea was the Price,
And five good Shillings more.
This Horse he fed with Corn and Hay,
Till he seem'd wond'rous sound:
When, meeting with another Chap,
He sold him for three Pound.
By which he lost half the Prime Cost,
One fourth o'th' Keeping too.
What did the Keeping stand him in?
What did he lose; say you?

II. QUERE

II. QUESTION 377, by Miss Maria A—t—f—n.

There are three Cities A, B, and C, lying in the same Road; whereof the first is 136 Miles distant from the second, and the second 104 Miles distant from the third: From A to B a Courier travelled in two Days; and from B to C in two Days more, diminishing his distance every Day alike, from the first to the last. What Number of Miles did he travel each particular Day?

III. QUESTION 378, by Mr. Charles Tate.

My Wife's a Scold, a Niggard, and a Slut,
And ev'ry Day she's sure to pay my Scott;
And yet for What, no Mortal e'er can tell,
Unless her Courage rise from living well:
The which to tame, that I may live in quiet,
I am resolv'd henceforth to stint her Diet,
In Quantity, to what it was before,
As to a: which, *Gentlemen*, explore,
From the Equations * that you see subjoin'd:
Else come and take my Place—If you've a Mind.

$$\begin{aligned} \text{* Given } \left\{ \begin{array}{l} \frac{a+a}{a} \times \frac{e}{a} = b = 83, 2. \\ \frac{a-a}{a} \times \frac{e}{a} = c = 1920. \end{array} \right. \end{aligned}$$

IV. QUESTION 379, by Mr. John Morland.

Two Persons, A and B, having an equal Claim to an Annuity of 100*£*. to continue for 30 Years, agree to share It between them in this Manner, *viz.* A for his Part is to enjoy the whole Annuity for the first ten Years; B and his Heirs being to have the intire Reversion thereof for the remaining 20 Years. The Question is, To find the Rate of Interest allow'd in this Contract, with the present Value of the Annuity corresponding.

V. QUESTION 380, by W. T—t.

The Sum of the Squares of the two Diagonals, of any Trapezium, together with the Square of twice the Line joining their Middle Points, is equal to the Sum of the Squares of all the four Sides of the Trapezium. A Demonstration of this is required.

VI. QUESTION 381, by Bathonius.

Two Ships sail, at the same Time, from two Ports under the same Meridian, whose Difference of Latitude is 1° 25'. That from the southermost Port runs due East at the Rate of 4½ Miles per Hour; and That from the Northernmost, E.S.E. at the Rate of 7 Miles per Hour: I demand the Distance sail'd by each Ship, when They are at their nearest

nearest Distance from each other, and also what that Distance will be.

VII. QUESTION 382, by Mr. *Tho. Mofs.*

To determine the least Triangle that can be circumscribed about a given Triangle, whereof the three Sides are 8, 10, and 12 Inches.

VIII. QUESTION 383, by *Anthony Shallow, Esq.*

To draw a Right-line parallel to a given Line, which may cut three other Lines given by Position, in such Sort, that the Rectangle under the two Parts thereof, intercepted by those Lines, may be given in Magnitude.

IX. QUESTION 384, by Mr. *Tho. Mofs.*

Sailing due North, at the Rate of 4 Knots, in a Current, a certain small Island bore E. N. E. from us, at the Distance of 40 Miles: After running 12 Miles (by the Log) It bore due East; and having run 16 Miles more, upon the same Course, It's Bearing was then found to be S. E. To determine, from these Observations, the Direction and Velocity of the Current.

X. QUESTION 385, by *W. T.—t.*

The vertical Angle of a Triangle being $= 70^\circ$, and the Sum of the two including sides $= 100$ Feet; To determine the Triangle itself, when the Perpendicular is a mean Proportional between the whole Base and one of its two Segments.

XI. QUESTION 386, by Mr. *Timothy Doodle.*

Within a rectangular Garden, containing just an Acre of Ground, I have a Circular Fountain, whose Circumference is 28, 40, 52, and 60 Yards distant from the four Angles of the Garden. From these Dimensions the Length and Breath of the Garden, and likewise the Diameter of the Fountain, are required.

XII. QUESTION 387, by Mr. *Patrick O Cavanah of Dublin.*

In the Latitude of $51^\circ 32'$ North stand two Pillars S. W. and N. E. of one another, at the Distance of 200 Feet: The Height of the southermost Pillar is 60 Feet, and That of the Northermost 40 Feet. At what Time of the Day, on June 20, do the Shadows of their Summits approach the nearest to each other?

XIII. QUESTION 388, by Mr. *Timothy Doodle.*

Supposing p, q, r, s, t , &c. to represent the Tangents of any Number of Arcs P, Q, R, S, T , &c. equal, or unequal: To determine a general Expression for the Tangent of the Sum ($P+Q+R+S+T$ &c.) of all those Arcs; the common Radius being Unity.

XIV. QUE-

XIV. QUESTION 389, by Mr. E. R.—*n.*

To determine the Ratio of the Densities of the Sun and Earth, independent of the Sun's Parallax.

XV. QUESTION 390, by *Anthony Shallow*, Esq.

Having given any three computed, visible Latitudes of the Moon, in a Solar Eclipse, together with the corresponding Differences of Longitude of the Sun and Moon: To shew the Manner of finding, from thence, the true Time of the greatest Obscuration, and likewise the nearest Approach of the two Centers.

PRIZE QUESTION, by *Anthony Shallow*, Esq.

To determine the Figure which the Piers (or the Starlings) of a Bridge ought to have, so that the Length, and greatest Breath of Each, and their Distances from one another, being given, the Water in its Passage through the Bridge shall suffer the least Resistance possible.

N. B. The Person who gives the best Solution to this Question will be intitled to a Prize of six Diaries: And whoever truly answers it, before Candlemas-Day, will have a Chance, by Lot, to win the same Number of Diaries.

ANSWERS to the ÆNIGMAS in the last-Year's Diary.

- I. 351. A COW-TIE.
- II. 352. FAME.
- III. 353. A PARROT.
- IV. 354. A STORM.
- V. 355. VARIETY.
- VI. 356. A PRINTER.
- VII. 357. TWELVE O'CLOCK,
or NOON.
- VIII. 358. A CHILD'S CORAL.

- IX. 359. AN HOAR-FROST.
- X. 360. A NEWS-PAPER.
- XI. 361. THE MONTHLY REVIEW.
- XII. 362. A CAT,
Prize FRENCH ALMANACK.
- 1. Lat. *Jonah*, in the *Whale's Belly*.
- 2. Lat. *The Sun*.
- 3. Lat. *A Frog*.

All the Ænigma's answered by Mr. *Ralph Hulse*, in the subsequent Declaration of *Strepson's* Passion for the charming *Sylvia*.

A S charming *Sylvia* with her PARROT play'd,
Strepson, a Youth, address'd the blooming Maid.
 The heav'nly Lustre of those piercing Eyes
 UN-TIE the Burthen of the Northern Skies!
 Those Lips more red than choicest CORAL are,
 Those Hands, than any Lily, soft and fair.

3

1

2

Tho'

Tho' the pale SUN darts forth a sickly Ray	2 Lat.
And wheels round distant Orbs the feeble Day;	
Tho' saucy PRINTERS should my Right molest,	6
And noisy CATS disturb my balmy Rest,	12
Yet full of <i>Thee</i> , thro' VAR'IOUS SCENES I go,	5
Fearless thro' STORMS when Winds tempest'ous blow.	4
Impatient grown, a fresh REVIEW I cast,	18
And trace, as FROG-like Bounds, the dreary Waste;	3 Lat.
More eager still, the raging Main explore	
And Billows undisturb'd by WHALES before.	3 Lat.
But if to crown my Joys with fond Delight	
My <i>Sylvia's</i> Form might bless me Day and Night,	
I would not envy those bright Realms that lye	
Beneath the Zenith of a NOON-TIDE Sky;	7
I'd range the Pole encompass'd round with FROST,	9
And find a Paradise in <i>Sylvia's</i> Coast.	
Let ROYAL-ALMANACK adorn her Name,	Pr.
And Bards in PUBLICK-PAPERS sound her FAME.	10. 2.

All the Ænigma's answer'd by *H—h Smith.*

As I one Day, by Chance, did look,	
Into the Ladies Riddling Book,	
There, first, I saw surprizing Tales	
Of STORMY Winds and mighty WHALES.	4. 1 Lat.
At next REVIEW, I did espy	18
NEWS PRINTED with VARIETY,	10. 6. 5
Of PARROTS, FROGS, and FAMOUS Knacks,	3. 3 Lat. 2
Of COW-TIES, CATS, and ALMANACKS;	12. Prize
Or how the SUN, at Noon, dispells	2 Lat. 7
The FROSTY Vapours from the Hills.	9
Lastly, with CORALS, Bells, and Fiddles,	3
I end an Answer to the Riddles.	

An Answer to most of the Ænigmas, by *Mr. Sam. Bamfield;*
inscribed to Miss *Anna Hulfe.*

Happy! most happy, Miss, your rural Seat;	
However BLUSTRING FAME may charm the Great.	4. 2
How sweetly there <i>Aurora</i> spreads her Beams!	
How kindly PHOEBUS shoots his lucid Streams!	2 Lat.
How charming does the silent NOON appear!	7
How blest each Day—each Month—the circling Year!	
No SOUNDING STRINGS disturb the peaceful Night;	12
Nor CHILDISH TOYS to empty Mirth excite.	8
No LIBELLERS, no human PARROTS there!	11. 3
Nor secret Foes, like nipping FROSTS, to fear.	9
No false, disgusting News disturbs your Mind,	10
But all is peaceful, honest, charming, kind.	

Long

Long may you, Miss, these Blessings all enjoy;
And nought your Peace, your Health, your Rest destroy.

Most of the *Ænigma's* were also answered, in Verse, by Mrs. *Elin. Gibbons*, Miss *Maria Ar—d—l*, Mr. *Ja. Dowse*, Mr. *R. Pearson*, Mr. *William Dennis*; and lastly by Mr. *John Ramsay*, ON THE CHARACTER OF A WOMAN. But Compositions of that satirical Turn are not allowable in the *LADIES DIARY*; for which Reason some other Answers (besides that Gentleman's) are omitted, that might, for their Elegancy, have merited a place in this Collection.

ANSWERS to the QUÆRIES in last Year's Diary.

Quære I. answered by *Oedipus Secundus*.

Gaudy Shews and Parade catch the Eye, Heart and Head
That is empty, and childish and vain:

For Like will to Like, as the Gudgeon will strike,

If tempting's the Bait or the Train.

Mr. Bamfield, entering more seriously into the Subject, imputes the Partiality of the Fair-sex in Favour of the Beaux, to a Desire of Admiration. Which kind of Homage these Gentlemen, who make it their whole Study to appear agreeable, are always ready at hand to bestow: Whereas Men of Sense, however great a Regard they may have for the Beautiful Part of the Creation, find other Objects worthy of some Part of their Attention.

But Miss *G. L. of Plymouth*, in Answer to this Quære, says, "That *Master Fish* (the Proposer) is quite mistaken; it being well known that "Ladies of Penetration choose Men of Sense and Merit; and leave the "outside Gentlemen for the superficial Ladies."

Quære II. answered by *Oedipus Secundus*.

Dear *Lucy* to state your nice Question aright,
And from Numbers to choose the fittest of Use;

(As such Purchases cheap are and common)

Your Scold is a Scab, Sot a Sow, Drone a Drab,

Your Jilt is a Beast, your Drunkard a Pest,

So that bad is the best, fit for no Man.

Hodge the Miller (being accustomed to the Softness of a Mill) declares for the Scold; whereas *Mr. T. B.* (a Gentleman of a very peaceable Disposition) prefers the Drone; as does likewise the ingenious *Mr. J. Milbourn*: Who answers *It* thus,

Of all the dark Characters here exprest,
A Drone is no great Bane to Peace and Rest,
Tho' bad indeed, yet still she seems the best.

But

But Mr. *Bamfield* is clearly for the *Scold*; because she does not waste her Husband's Effects, as the *Sot*, *Drone*, and *Filt* necessarily must. A Man (adds he) may stand (though very uneasily) in the Presence of a Scold: But who can behold a rational Creature metamorphosed into a Beast? An active Being into a Stone? or a beautiful Creature openly violate the most sacred Oaths of Love and Fidelity, without great Amazement, Sorrow, and Indignation?

After all, we cannot but approve of Miss G. L.'s Opinion, who says,

"Were I to choose for Each a Man
"Like unto Like thou'd be my Plan.

Quære III. answered by *Hodge the Miller*.

It is impossible for all Men to be happy alike; although a great Many might make themselves much more happy than they are; by preserving a Serenity of Mind, and bearing those Misfortunes with Calmness and Resolution which they cannot avoid.

Quære IV. answered by *Oedipus Secundus*.

Ev'ry Suit and Offence might be settled by Sense,
By Reason's and Truth's easy Rules;
But Passion and Pride are so strong on each Side
That neither will own themselves Fools.

Quære V. answered by T. B.

To shew the Resolution and Activity of Those who have a better share of Animal Spirits than Understanding.

Quære VI. answered by Miss G. L.

By not throwing good Money after bad; but rather taking what They can get, and giving the Debtor his Liberty to work for more.

Quære VII. answered by *Oedipus Secundus*.

An handsome fair Face is a Gift, and the Grace
Of the Sex, when They're virtuous and good.
'Tis the Heart that betrays into Thorns and By-Ways,
And makes It a Snare when They're lewd.

Prize Quære answered by Miss G. L.

1. That all Animals may keep Society with their own Species. 2. That Men, Beasts, Birds, &c. may discern wholesome Vegetables from such as are poisonous; by their Form, Smell, &c.

To which this young Lady adds, that, 1 Cor. xv. ver. 38. answers the whole in every Respect better than it can be answered any other Way.

ANSWERS to the QUESTIONS in the last Year's Diary.

I. QUESTION 361, answered by Mr. J. M.

The Spaces pass'd through by falling Bodies being as the Squares of the acquired Velocities, the Velocity of the Water falling 8 Feet is to its Velocity acquired in falling 6 Feet, as $\sqrt{8}$ to $\sqrt{6}$. Therefore by the Property of the Leaver, the Force of the same Water to turn a Wheel of 16 Feet, with a Fall of 8 Feet, is to its Force to turn a Wheel of 18 Feet, with a Fall of 6 Feet, as $16\sqrt{8}$ to $18\sqrt{6}$, or as $8\sqrt{4}$ to $9\sqrt{3}$; that is, as $\sqrt{256}$: $\sqrt{243}$. Whence, it is evident that the Wheel of 16 Feet Diameter has the greatest Advantage.

It was answered in like Manner, and on the very same Principles, by several other Contributors. But these Principles, though true in themselves, do not appear to us sufficient to give a right and full Determination of the Problem under Consideration. To have the true Quantity of the Effect, not only the Height of the Fall, and the Diameter of the Wheel, but also the Weight and Force of the Water in the Wheel ought to be regarded; and consequently the different Positions of the Buckets with Respect to the Horizon. — As this is a Subject of much Importance, it is hoped our ingenious Correspondents will think it worthy of a farther Consideration, and communicate their Thoughts thereon, for the Benefit of the Publick, in our next *Diary*; to which we shall refer for a fuller Discussion of this Matter.

II. QUESTION 362. answered by Mr. Timothy Doodle.

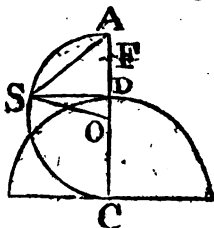
Let CD be the Earth's Semi-Diameter, and DA the required Height from whence the Ball must fall: Then $3 : 4 :: CD^2 : CA^2$; and consequently $CA = CD \times \sqrt{\frac{4}{3}} = 3980 \sqrt{\frac{4}{3}} = 4596$ Miles. Whence DA is given = 616 Miles, or 3252480 Feet.

Now the Distance descended in the first Second of Time being *always* as the Force, it will here be $= \frac{3}{4}$ of $16 \frac{1}{2}$ Feet = $12 \frac{1}{6}$ Feet: And consequently the Time of Descent through AD, with the same Force

uniformly continued, $= \sqrt{\frac{3252480}{12 \frac{1}{6}}} = 519$ Seconds. But, supposing a

Semi-circle ASC to be described upon AC, and DS perpendicular to AC, the true Time of Descent through AD will be in Proportion to 519 Seconds, the Time just now found, as half the Sum of the Sine DS and the Arch AS is to the Chord AS (*as is proved by the Writers on Fluxions.*) Now $AC : CD :: \sqrt{4} : \sqrt{3} :: 2$

(twice the Radius of the Tables) : $\sqrt{3} = 1.732 =$ the Verfed-Sine of the Angle $SO C = 137^{\circ}.4'$. Whose Supplement AOS is therefore given $= 42^{\circ}.56'$: The natural Sine of which will be .6811, and the Measure of the Angle itself $= .7494$; the Half-Sum of These is .7152: But the Chord of $42^{\circ}.56'$ ($2 \times$ Sine $21^{\circ}.28'$) is .7319. Hence it will be .7319 : .7152 :: 519 : 507 Seconds, or 8 Min. 27 Sec. the true Time required.



The same answered by Anthony Shallow, Esq;

If the Earth's Semidiameter (C D) be denoted by a , it is plain that

$a \sqrt{\frac{4}{3}} - a$ will express the required Height AD from which the Ball must fall. To determine therefore the Time of the Descent thro' AD, let the Velocity of the Ball, per Second, acquired in falling thro' any Distance AF ($= x$), be denoted by v ; putting $c = AC$, and $d (= \frac{3}{4} \times 16.1) =$ the Distance descended in the first Second of Time from A: Then, $2d$ being the Measure of the Velocity acquired in one Second, with the Force at A, it will be, as $c - x^2 : c^2 :: 2d : \frac{2dc}{c - x^2}$, the Velocity generated, per Second, by the Force at F.

Therefore $v : \frac{2dc}{c - x^2} :: x : v$; and consequently $\frac{v}{2d} = \frac{cx}{c - x^2}$.

Hence, by taking the Fluent, $\frac{v}{4d} = \frac{cx}{c - x^2} - c = \frac{cx}{c - x^2}$. There-

fore $v = 2 \sqrt{dc} \times \frac{x^{\frac{1}{2}}}{\sqrt{c - x}}$, and consequently $\frac{x}{v} = \frac{x \sqrt{c - x}}{2 \sqrt{cd} \times x^{\frac{1}{2}}}$

$= \frac{1}{2 \sqrt{cd}} \times \frac{cx - xx}{\sqrt{cx - xx}} =$ the Fluxion of the required Time.

Whole Fluent is $= \frac{1}{x} \sqrt{\frac{c}{d}}$ multiplied by the Sum of the Sine and

Arch whereof the corresponding Verfed-Sine is $\frac{2x}{c}$ (Unity being the

Radius). But $\sqrt{\frac{c}{d}}$ (expressing the Time of Descent thro' AC, with an uniform Force equal to that at D) is given $= 1418$ Seconds. And

$\frac{2x}{c}$ is $= 0.26795$; answering to an Arch of $42^{\circ}.56'$; whose

C

Length

IV. QUESTION 364 answered by Mr. John Wigglesworth.

L E T P represent the North Pole, Z the Zenith, Z S the Shadow of the Stick, and Z T the Direction of the Cloud; then the Angle T Z $\odot$ = 60° ; and, in the oblique Spheric Triangle $\odot$ Z P, is given P Z the Complement of Latitude, P $\odot$ the Complement of the Sun's Declination, with the contained Angle P; whence the Angle $\odot$ Z R is found = $9^{\circ}.42'.30''$; which added to T Z $\odot$, gives T Z R = $69^{\circ}.42'.30''$. Therefore the Wind blew from W. b. N. $\frac{3}{4}$ N. nearly. Again, by allowing 70 Pulsations to a Minute, the Shade of the Cloud will move over a Space = 88 Yards in the Time of 10 Pulsations, or $8\frac{4}{7}$ Seconds; which is at the Rate of 21 Miles per Hour.



The same answered by Mr. James Robinson.

During 10 Pulsations, we may suppose the Sun does not sensibly change its Place; and, considering the immense Distance of the Sun, when compared with that of a Cloud, we may take the Rays proceeding from the Sun to the Cloud, at both Observations, to be parallel: Then, the Sun's Azimuth being (*per Spherics*) $9^{\circ}.26'$ from the South, the Direction of the Cloud was E. b. S. $\frac{3}{4}$ S. *ferè*; and the hourly Velocity of the Wind, blowing from the opposite Point, 21 Miles. W. W. R.

Mr. Afb, Barbonius, Mr. W. Bevil, Mr. T. Coates, Mr. Richard Gibbons, and some Others, also answered this Problem, and agree, exactly, in the Velocity of the Cloud; but make some little Difference in its Direction, arising from having taken the Sun's Declination from different Authors

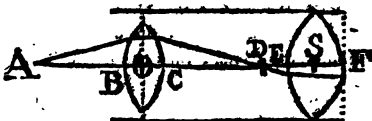
V. QUESTION 365 answered by Mr. J. Milbourn.

L E T 100 £. Principal = a , and for the required Principal, &c. put x ; then $a : x :: x : \frac{x^2}{a}$, the Interest for one Year; and as x (Year) is to x (Years) so is $\frac{x^2}{a} : \frac{x^3}{a}$, the Interest for x Years: Whence (*per Quest.*) $\frac{x^3}{a} = \frac{x^2}{2}$; reduced, $x = \sqrt{\frac{a}{2}} = 7.07106$ Pounds = 71 1s. 5d.

In the very same Manner it was answered by Mr. J. Afb, Mr. S. Bamfield, Mr. G. Dickinson, Mr. J. Colinge, Mr. Gibbons, Mr. Hollingworth, Mr. Jonab Milford, Mr. W. Newman, Mr. Jos. Pail, Mr. D. Roberts, Mr. James Robinson, and Mr. Ch. Tate.

VI. QUESTION 366 answered by Kußpernius.

LET the Radius of Convexity of the Lens O, next the Object A, be put $= a$, its Thickness $BC = b$, the Radius of the Eye-Glass $S = \alpha$, and its Thickness EF



$= \beta$; and let the Sine of Incidence be to that of Refraction, out of Air into Glass, as 1 to r ; putting $q = 1 - r$, $t =$ the given linear Amplification, and $x =$ the Distance CD of the Place of the Image from the Lens O.

Then, A being the Place of the Image of an Object at D, by a known Theorem in Optics, AB will be equal to $\frac{r a Q}{q Q - a}$; Q being put $= b + \frac{x}{q r}$. And, by another known Theorem (which is

a Corollary to the former) the principal Focal Distance ED of the Lens S, will be $\frac{r \alpha}{q} \times \frac{a - q \beta}{2 a - q \beta}$.

BUT, by the Question, $b = \frac{3a}{8}$, $\beta = \frac{3a}{8}$, and $a = \frac{10a}{3}$. Therefore,

by the Substitution of equal Values, $Q = \frac{3a}{8} + \frac{x}{r - q r}$, and $DE =$

$\frac{10 r \alpha}{3 q} \times \frac{1 - \frac{3}{8} q}{2 - \frac{3}{8} q} = \alpha \times \frac{10 r}{3 q} \times \frac{8 - 3 q}{16 - 3 q}$. Whence $DS (= DE + ES) = \alpha \times \frac{10 r}{3 q} \times \frac{8 - 3 q}{16 - 3 q} + \frac{5a}{8} = c \alpha$, by putting $c = \frac{10 r}{3 q} \times \frac{8 - 3 q}{16 - 3 q} + \frac{5}{8}$. Again, by the Question, $\frac{OD}{OA} \times \frac{FA}{SD} = t$; that

is, in Species, $\frac{x + \frac{3a}{16}}{\frac{r a Q}{q Q - 1} + \frac{3a}{16}} \times \frac{c \alpha + \frac{3a}{8} + \frac{r a Q}{q Q - a}}{c \alpha} = t$.

Put $\frac{x}{a} = z$, and $\frac{3}{8} + \frac{z}{r - q r} = y$; then will $Q (= \frac{3a}{8} + \frac{a z}{r - q r}) = a y$; and our Equation, by Substitution, &c. will be reduced to

$\frac{z + \frac{3}{16}}{\frac{r y}{q y - 1} + \frac{3}{16}} \times \frac{c + \frac{3}{8} + z + \frac{r y}{q y - 1}}{c} = t$; or, $z + \frac{3}{16} \times$

$$c + \frac{3}{8} + x + \frac{xy}{qy-1} = c \times \frac{3}{16} + \frac{xy}{qy-1} \text{ . From whence, and}$$

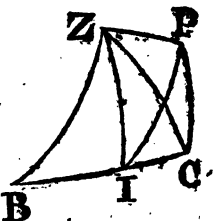
$\frac{3}{8} + \frac{x}{r-qx} = y$, the Value of x , will be found by an Equation of three Dimensions: And then, the Value of FA being given in Terms of e , by putting that Value $= 8$ Inches, q itself will be found, and from thence every Thing else, required.

But as the finding of x this Way (the Terms being numerous) will be somewhat troublesome, the known Method of Approximation, by Trial and Error, may be here used with Advantage. According to

which, having assumed for the Value of x , That of $y (= \frac{3}{8} + \frac{x}{r-qx})$ will be immediately found; and then, by substituting these two Values in the other Equation, the Error will be determined, &c. &c.

VII. QUESTION 367 answered by Mr. W. T—t.

LET P be the Pole of the World, Z the Zenith of the Place, and B, I, C , the three Stars: From the given Longitudes and Latitudes of which, or from their Right Ascensions and Declinations, the Distances BI and IC , and the Angle BIC , may be found, by common Trigonometry.



Assume the Value of ZI as near as you can to its true Value: Then, having two Sides and one Angle, in each of the Triangles BIZ, CIZ , the Angles BIZ and CIZ may be found, and consequently their Sum BIC . Mark how much this Value of BIC differs from the given Value of the same Angle: Then make a second Assumption for ZI ; and find, again, the Value of the Angle BIC , marking the Error, as before. From these two Errors a new Value of ZI , by the known Methods of Approximation, may be found; and so on, 'till you arrive to what Degree of Exactness you please. Having thus determined ZI and ZIC , from the latter of these deduct PIC , the Remainder gives the Angle ZIP : From which, and the two given Sides including it, both ZP and ZPI will become known.

VIII. QUESTION 368 answered by Mr. J. Robinson.

LET $999999 = a$ be the constant Factor, in order to produce six 1's, six 2's, &c. The other Factor call x , and the first Product p ; then $xa = p$, and consequently $x = \frac{p}{a}$.

Universally, putting the constant Factor (which is arbitrary) for the Denominator, and the given Product for the Numerator, the Fraction,

or Fractions, thence arising will be the variable Factor, or Factors, required.

If any Number of 9's be taken for the Denominator of a Fraction, and the same Number of any of the Digits for a Numerator, the Fraction, when reduced to a Decimal one, will have the very same Figures as the Numerator, repeated to Infinity. Thus, for Example,

$\frac{1234}{9999}$ is = ,1234123412341234, &c. *ad infinitum*. Thus also,

$\frac{44444}{999999}$ = ,44444, &c. and consequently $999999 \times ,4444$, &c.

= ,444444; and so of Others. The variable Factors, derived by this General Method, are Fractions; but there are particular Answers to be

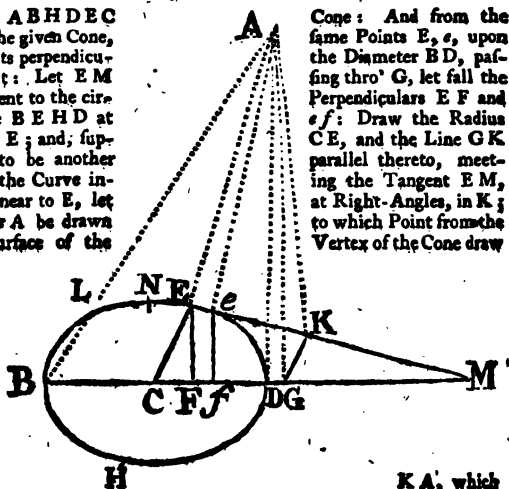
had in whole Numbers. Thus, because $\frac{111111}{3} = 37037$, and

$\frac{31111111}{3} = 37037037$, it is evident that, if $\frac{1}{3}$ be taken for the

constant Factor, the respective variable Factors, to produce six, and nine 1's, will be 37037, and 37037037. The *Multiples* of which by 2, 3, 4, 5, &c. will consequently be the other variable Factors required. In like Manner, 37 being assumed for the constant Factor, the variable Ones will be 3003 and 3003003, together with their *Multiples*.

IX. QUESTION 369 answered by ΚΥΒΕΡΗΤΗΣ.

LET ABHDEC be the given Cone, and AG its perpendicular Height: Let EM be a Tangent to the circular Base BEHD at any Point E; and; supposing *e* to be another Point in the Curve indefinitely near to E, let EA and *e*A be drawn in the Surface of the



Cone: And from the same Points E, *e*, upon the Diameter BD, passing thro' G, let fall the Perpendiculars EF and *ef*: Draw the Radius CE, and the Line GK parallel thereto, meeting the Tangent EM, at Right-Angles, in K; to which Point from the Vertex of the Cone draw

KA', which

KA, which will be perpendicular to the Tangent EM; because (being equal to $\sqrt{AG^2 + GK^2}$) it will be the least possible, in this Position, where GK is the least possible.

Put now $CE = a$, $CG = b$, $AG = c$, and $CF = x$, $BE = x$, and $Ee = x$. Then, by the Property of the Circle, $CM = \frac{a}{x}$; And,

by similar Triangles, $CM : CE :: MG (\frac{a}{x} - b) : GK = a - \frac{bx}{a}$.

Whence $AK (= \sqrt{AG^2 + GK^2}) = \sqrt{c^2 + a^2 - 2bx + \frac{b^2xx}{a}}$;

Which, multiplied by $\frac{1}{2}x$, gives $\frac{1}{2}x \sqrt{cc + aa - 2bx + \frac{b^2xx}{a}}$

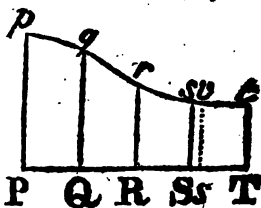
for the Area of the Triangle EAc, or the Fluxion of the required

Superficies. Which Fluxion, because $\dot{x} = \frac{ax}{\sqrt{aa - xx}}$, is also $=$

$\frac{1}{2}ax \sqrt{cc + aa - 2bx + \frac{b^2xx}{a}}$: Whose Fluent will express the
 $\sqrt{aa - xx}$
 required Superficies of the Cone.

But, as the finding of this Fluent is extremely troublesome, and, when it is found, converges slowly (except where the Cone is but little inclining) I shall therefore give the Solution by a different, and more general Method.

Let PT be a Right-line equal in Length to the Semi-circumference BNE D; upon which, as a Base, (or Abcissa) suppose a Curve pqrst to be described, such that, taking PS always equal to BE, the Ordinate Ss shall be every-where equal to Half the corresponding Perpendicular AK: Then it is plain, that the Area PTsp of this Curve, will be exactly equal to Half the convex Superficies of the Cone. To approximate which, conceive the Axis PT of the Curve, and the Semi-circumference BNE D of the Circle, to be divided, each, into four equal Parts; and let the successive Values of AK



$(= \sqrt{c^2 + a^2 - \frac{bx^2}{a}})$ answering to the Points of Division B, L, N,

E, D (or P, Q, R, S, T) be computed, and represented by d, l, n, e, d (or P, Q, R, S, T) be computed, and represented by d, l, n, e, d

and h , respectively. Then, these Values being the Doubles of the corresponding Ordinates Pp , Qq , Rr , Ss , Tt , it is evident, by the

Method of Equi-distant Ordinates, that $\frac{7 \times d + b + 32 \times e + g + 12 f}{90}$

$\times \frac{1}{2} P T$, will express the Area of the Curve, or Half the Superficies of the Cone, very nearly.

Now, in the Case proposed, AB being $= 12$, $AD = 9$, and $BD = 6$, we have $CE = 3 = a$; $DG (= \frac{AB^2 - AD^2 - BD^2}{2 BD}) =$

$\frac{2}{3}$; $CG = 5\frac{1}{3} = b$; and $AG^2 = 75.9375 = c^2$. Here, therefore,

$d (= AB) = 12$; $e (= \sqrt{cc + aa + \frac{1}{2}bb + ab\sqrt{2}}) = 10.9996$;

$f (= \sqrt{cc + aa}) = 9.2162$; $g (= \sqrt{cc + aa + \frac{1}{2}bb - ab\sqrt{2}}) =$

8.7432 ; and $b (= AD) = 9$. From whence ($\frac{7 \times d + b + 32 \times e + g + 12 f}{90}$

$\times AED$) the Content of the whole, required, Superficies comes out 93.13 square Inches. By taking a greater Number of Ordinates, the Answer may be brought out to any Degree of Exactness desired, however great the Inclination may be.

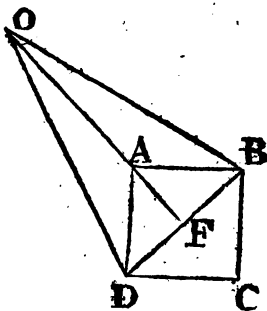
Mr. Bamfield, by an easy Approximation, brings out nearly the same Numbers with the above.

X. QUESTION 370 answered by Mr. J. Robinson.

LET $a = OD = OB = 78$, $b = OA = 59.161$, and $x = AF$. Then (per Eu. 47. 1.) $bb + 2bx + 2xx = ad$. Reduced,

$$x = \sqrt{\frac{aa - bb}{2} - \frac{b}{2}} : \text{From whence}$$

the Side of the Square will be found $= 24$ Poles, and the Area of the Field 3 Acres, 2 Roods, and 16 Perches.



The same answered by Master John Birks, a Tyro at Golberton School.

The three visible Corners of the Field being represented by A , B , and D , it is evident, because the given Distances of the two last from the Oak, at O , are equal, that the Line OAF bisects the Angle BAD , and consequently that the Angle $BAO = 135^\circ$. From which, and the given Sides AO and BO , the Angle ABO is found (by Trigonometry)

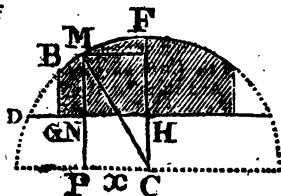
ometry) = $32^{\circ}.26'$; $A \odot B = 12^{\circ}.34'$; and the Side of the Square $AB = 24$ Poles: Whence the Area of the Field = 3 Acres, 2 Roods, and 16 Perches, which was required.

According to this last Method it was also answered by Mr. Richard Gibbons, and Mr. J. Milbourn. Mr. C. Tate, Mr. J. Wigglesworth, Mr. J. Ash, and some Others, solved it by different Methods.

XI. QUESTION 371 answered by Mr. T. Coates, Writing-Master at Bristol.

PUT r = the Radius CF of the generating Circle, which is found (by common Properties) = 51; also put $c = CH = 33$, $DH = b$, $HN (= CP) = x$, and $MN = y$.

Then, universally, $y = \sqrt{rr - xx}$
 $-c$: Therefore $yy = rr - xx +$
 $cc - 2c\sqrt{rr - xx} = bb - xx - 2cy$;



and $py^2x = p \times bbx - xxx - 2cyx = S$; whose Fluent is $p \times$
 $bbx - \frac{1}{3}x^3 - 2cx$ Area $MNHF = S$: Which, when $x = 24$,
 gives the Content 139.42 Ale Gallons.

The same answered by Mr. John Wigglesworth.

Let $GH =$ Half the Length of the Cask = 24 = a , $BG = 12$
 $= b$, $HF = 18 = c$; also put $r =$ Rad. $CM = CF = \frac{aa + c - b}{2c - 2b}$
 (by the Nature of the Circle) $m = PN = CH$, $p = 3.14159$, &c.
 $x = HN = CP$, and $y = MN$: Then $y = \sqrt{rr - xx - m}$; and
 therefore $py^2x = p \times r^2 - x^2 + m^2 - 2mpx \sqrt{rr - xx} =$
 the Fluxion of the Solidity. Whose Fluent $px \times rr - \frac{1}{3}xx + m =$
 $- 2mp \times$ Area $CFMP =$ the Solid described by the Rotation of
 $HFMN$ about the Line HN : And, if L be put for the Length
 of the Arc whose Radius is r , and Right-Sine x , then $\frac{rL + mx + xy}{2}$
 $=$ Area $CFMP$. Whence the Solidity of the whole Cask, when
 $x = a$, and $y = b$, is $2p \times ar^2 - \frac{1}{3}a^3 - mrL - abm = 39316.99$
 Cubic Inches, or 139.4239 Ale Gallons.

Mr. Richard Gibbons, putting $x = 12$, makes the Content, by
 Shirlcliff's Gauging, (P. 201) = 0.080685 $x^3 = 139.4237$ Ale Gal-
 lons. Mr. J. Milbourn, by a different Method, makes it 139.44; and
 Mr. Charles Tate, of Hull, 139.43.

XII. QUESTION

XII. QUESTION 372 answered by Mr. Timothy Doodle.

LET O and C be the Centers of the Earth and Moon, and H the Place required: Suppose HF and HB to touch the two Surfaces in F and B, and let FGf and BDb be perpendicular to OC.

Put $a = OE = 3985$, $b = CE = 1085$, $c = OC = 245070$, and $x = OH$; and let $p = 2 \times 3.14159$, &c. So shall the Circumference FEf, &c. $= pa$, and the Circumference BAb, &c. $= pb$: And therefore the Parts FEf, BAb of the two Surfaces visible to an Eye at H, are equal to $pa \times EG$ and $pb \times AD$, respectively.

But, by similar Triangles, OH (x) : OF (a) :: OF (a) : OG $= \frac{aa}{x}$: Whence

$EG = a - \frac{aa}{x}$: And, in the very same

Manner, $AD = b - \frac{bb}{c-x}$. Therefore, by Substitution, FEf

$+ BAb = pa \times a - \frac{aa}{x} + pb \times b - \frac{bb}{c-x}$: Which, being a

Maximum, $\frac{a^3}{x} + \frac{b^3}{c-x}$ must be a Minimum; and its Fluxion —

$\frac{a^3}{x^2} - \frac{b^3}{(c-x)^2} = 0$. Hence $\frac{x^2}{a^3} = \frac{(c-x)^2}{b^3}$; or $\frac{b}{a} \sqrt{x} = c - x$,

and consequently $x = \frac{c}{1 + \frac{b}{a} \sqrt{x}} = 214585$. Therefore the Place where

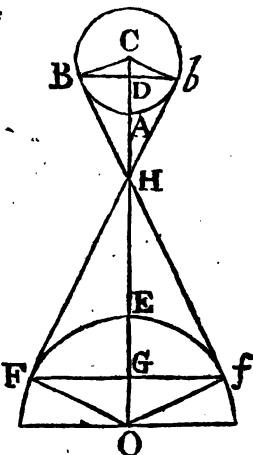
Friend Bevil must take his View is 210600 Miles above the Surface of the Earth, if He can find his Way up so high.

Mr. Alb, Mr. Wigglesworth, and Mr. Bevil the Proposer, (proceeding upon the same Principles) bring out the same Conclusion.

XIII. QUESTION 373 answered by Anth. Shallow, Esq;

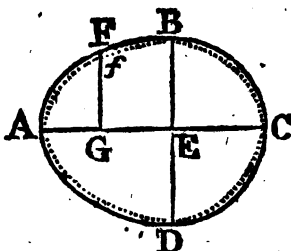
THIS Question, in the Form it is proposed, is indeterminate: The Figure of the Egg, as well as its principal Dimensions, ought to have been given; since, of an Infinity of Curves that may be described thro' the same, given, Points, Experience is not sufficient

to



to direct us which to choose; it not being known that ever two Eggs were *exactly* of the same Figure.

Let $A F B C D$ be a Section of the Egg thro' its Axis $A C$, and let $B D$ be the given Position of the greatest Ordinate. It is visible that innumerable Curves, $A F B C D$, $A f B C D$, &c. may be described thro' the given Points A, B, C , and D , to cut $A C$ and $B D$ at Right-Angles, conformable to the Nature of the Problem. But, the greatest Ordinate $B D$ dividing the Axis $A C$ unequally, no Curve of a lower Order than the second can possibly answer these Conditions.



Let, therefore, $A F B C$ be a Curve of this Order, whose Equation is $yy = bx + cx^2 + dx^3$ (being the most simple the *Data* will admit of): Also let $AC = p$, $AE = q$, $BE = r$: Then, by making $x = p$, and $y = 0$, our general Equation becomes $bp + cp^2 + dp^3 = 0$, or $b + cp + dp^2 = 0$.

Also, by making $x = q$, and $y = r$, we have $bq + cq^2 + dq^3 = r^2$, or $b + cq + dq^2 = \frac{r^2}{q}$.

Lastly, by making $bx + 2cx^2 + 3dx^3$ (the Fluxion of $bx + cx^2 + dx^3$) $= 0$, and writing q in the Room of x , we have $b + 2cq + 3dq^2 = 0$.

Now, from the three Equations thus derived, d is found $= -\frac{r^2 \times 2q - p}{q^2 \times p - q^3}$; $c = \frac{r^2 \times 3q - pp}{q^2 \times p - q^3}$; and $b = \frac{r^2 p q \times 2p - 3q}{q^2 \times p - q^3}$.

Therefore the general Equation, in known Terms, is $yy = \frac{r^2}{q^2 \times p - q^3}$.

$\times 2p - 3q \times p q x + 3q q - p p \times x x - 2q - p \times x^3$. Whence,

if π be put $= 3.14159$, &c. we get $\pi y y x = \frac{\pi r r r}{q^2 \times p - q^3} \times$

$2p - 3q \times p q x x + 3q q - p p \times x^2 x - 2q - p \times x^3 x$ for the Fluxion of the Solidity. Whose Fluent, when $x = p$, will be found

$= \frac{\pi r^2 p^3 \times 6p q - 6q q - p p}{12 q^2 \times p - q^3}$, expressing the true Content of the

whole Solid. Which therefore is to $(\pi r r p)$ That of the circumscribing Cylinder,

Cylinder, in the Proportion of $\frac{p^2 \times 6pq - 6qq - p^2}{12q^2 \times p - q^2}$ to Unity.

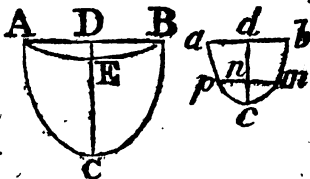
This Proportion, in the Case proposed, (where $p = 2\frac{1}{2}$, $q = 1\frac{1}{2}$, and $r = \frac{1}{2}$) becomes as $\frac{27\frac{1}{2}}{43\frac{1}{2}}$ to Unity. Therefore the Solidity (according to the above Assumption) comes out 2.8124 Cubic Inches.

As to the Superficies, or Shell of the Egg, it may be also found from the same general Equation; but it is hoped the facetious Proposer will himself determine that, and accept it as a proper Reward for his Trouble and Industry in promoting useful Science.

Some Correspondents consider the Egg as formed of two unequal Semi-spheroids; but this does not seem to agree well with the true Figure, it being hard to conceive that the Curvature should be immediately changed by more than one Half, in passing from one Side of the greatest Ordinate to the other.

XIV. QUESTION 374 answered by Mr. W. Bevil.

Let acb be a Curve similar to That (ACB) formed by the Chain, such that its Ray of Curvature (a) at the lowest Point c may $= 1$. Then, the Area of the Semi-curvilinear Space, acd , will be truly defined by $y\sqrt{1+x^2} - x$, (as is proved by the Writers on Fluxions); x



being $= ca$, and $y (= ad) = \text{Hyp. Log. } x + \sqrt{1+x^2}$.

Hence, putting the Length of the Chain $= c$, we have (by the general Property of similar Figures) as $(x+y)^2 : \frac{1}{4}cc (AC+AD)^2$

$$:: y\sqrt{1+x^2} - x : \frac{\frac{1}{4}cc \times y\sqrt{1+x^2} - x}{x+y^2} = \text{Area } ACD$$

Which being a Maximum, let its Fluxion be therefore taken and made $= 0$; whence, after proper Reduction, there will come out

$$\frac{\frac{1}{2}yx \times x + y}{1 + \sqrt{1+x^2}} = y\sqrt{1+x^2} - x. \text{ From which Equation (by the}$$

known Methods of Approximation) the Values of x and y may be found: For, having assumed for x , y will be given from the Equation $y =$

$\text{Hyp. Log. } x + \sqrt{1+x^2}$; and then, by substituting these Values of x and y in the above Equation, the Error will be known; and from thence, by repeating the Operation, &c. the true Value of x ; which comes out $= 5.462$; and $y = 2.399$. Then $7.861 (ac + ad)$:

2.399

Solidity of the Hoof Dam ; therefore $\frac{2:ca^3}{2} + \frac{ca^{\frac{3}{2}}x^3}{2} =$ the

Solidity of the remaining Water, which let $=qx^3 - p$: Then (per Stone) $Ca :: \text{Sine of } K a :: qx^3 - p : w$; or, which is the same Thing, (because the Triangles are similar) Am

$$\left(\frac{10a^2 - 16ax^2 + 10x^4}{2} \right)^{\frac{1}{2}} : mn \left(\frac{a - nx^2}{2} \right) :: qx^3 - p : w$$

$$= \frac{na - nx^2 \times qx^3 - p}{10a^2 - 16ax^2 + 10x^4)^{\frac{1}{2}}}, \text{ the Tension, a Max. and consequently}$$

$$\frac{a - x^2 \times qx^3 - p}{a^2 - 1.6ax^2 + x^4)^{\frac{1}{2}}}, \text{ thrown into Fluxions and properly reduced,}$$

gives $x^2 = 13.6$, *ferd.* Hence the Weight required $= 24.7054$, and $PC = 201.57$.

The same answered by Mr. Patrick O'Cavanah.

Put $a = 15 =$ the Depth of the Frustum, $b = 20$ the greatest Diameter AD , $c = 10 =$ the least Diameter EF , $p = .7854$, and $[2am] = x$. Then, supposing mn perpendicular to DA , it will be

$$b - c : b - x :: a :: a \times \frac{b - x}{b - c} = mn : \text{Whence, by a well-known}$$

Theorem for the Content of a Conical Ungula, the Solidity of ADm is

$$= \frac{\frac{1}{3}pab \times bb - x \sqrt{bx}}{b - c}, \text{ Which, subtracted from } \frac{1}{3}pax$$

$bb + bc + cc$, the Content of the whole Frustum $AFED$, leaves

$$\frac{\frac{1}{3}pc}{b - c} \times bx \sqrt{bx - c^3} \text{ for the Part } AFEm, \text{ in which the Water}$$

is contained. Now the Tension of the Rope, or the Force of the Weight W , acting at Right-Angles to Ca , so as to sustain the Water in this Position, is known to be in Proportion to the Weight of the Water in the Vessel, as the Sine of the Angle CPa (or DAm) to the Radius; that is, as mn to Am , or, in Species, as $a \times$

$$\frac{b - x}{b - c} \text{ to } \sqrt{\frac{a^2 \times b - x^2}{b - c)^2} + \frac{b + x^2}{4}}. \text{ Whence, by the Question,}$$

$$\frac{b - x \times bx \sqrt{bx - c^3}}{\sqrt{a^2 \times b - x^2 + \frac{1}{4} \times b - c^2 \times b + x^2}} \text{ (which is in a given}$$

Ratio to $AFEm \times \frac{mn}{Am}$) must be a *Minimum*. This Expression, by

putting

putting $y y = b x$, $d = \frac{b - c}{2}$, and $f = \frac{a a - d d}{a a + d d} \times 2 b b$, and dividing

the Denominator by $\sqrt{a a + d d}$, is reduced to $\frac{b b - y y \times y y - c c}{\sqrt{b^4 - f^2 y^2 + y^4}}$.

Which, in Fluxions, &c. gives $\frac{3 y}{y^3 - c^3} - \frac{2}{b b - y y} + \frac{f f - 2 y y}{b^4 - f^2 y^2 + y^4} = 0$. Hence $y = 16.516$, $x = 13.7578$, $CP = 202.66$, and $W = 24.709$ Pounds.

Remark. As the taking of the Fluxions of Expressions compounded like That in the preceding Solution, is somewhat troublesome, the following Method may, in such Cases, be of Use.

Seeing $\frac{y^3 - c^3 \times b^2 - y^2}{\sqrt{b^4 - f^2 y^2 + y^4}}$ is to be a *Maximum*, by the Question,

the Logarithm thereof, or its Equal, $\text{Log. } y^3 - c^3 + \text{Log. } b^2 - y^2 - \frac{1}{2} \text{Log. } b^4 - f^2 y^2 + y^4$, must also be a *Maximum*, and con-

sequently its Fluxion $\frac{3 y^2 \dot{y}}{y^3 - c^3} - \frac{2 y \dot{y}}{b b - y y} + \frac{f f y \dot{y} - 2 y^3 \dot{y}}{b^4 - f^2 y^2 + y^4}$

$= 0$: Whence, dividing by $y \dot{y}$, we have $\frac{3 y}{y^3 - c^3} - \frac{2}{b b - y y} +$

$\frac{f f - 2 y^2}{b^4 - f^2 y^2 + y^4} = 0$, the same as before. Which Equation stands in a much better Form, for a Solution, than That immediately resulting from the common Method. In like Sort, supposing

$\frac{a^2 - x^2)^{\frac{1}{2}} \times b^3 + x^3)^{\frac{1}{3}} \times c^4 - x^4)^{\frac{1}{4}}}{a - x^2 \times a^2 + 2 d x + x^2}$ was to be a *Maximum*,

or *Minimum*, we should have $\frac{1}{2} \text{Log. } a^2 - x^2 + \frac{1}{3} \text{Log. } b^3 + x^3 + \frac{1}{4} \text{Log. } c^4 - x^4 - 2 \text{Log. } a^2 + 2 d x + x^2$ a

Max. or *Min.* And consequently $-\frac{x}{a^2 - x^2} + \frac{x^2}{b^3 + x^3} - \frac{x^3}{c^4 - x^4}$

$+ \frac{2}{a - x} - \frac{2 d + 2 x}{a^2 + 2 d x + x^2} = 0$. And so of the Others.

The last Year's PARADOXES answered.

PARADOX I. answered by Mr. R. Pearson.

LET Cotnam tell his Lord, he must
Dwell underneath the North Pole just;
Then, let him visit Age, or Youth,
His Course he'll surely steer full South.

PARA-

PARADOX II. answered by Hodge the Miller:

THE Man had his Son and Daughter by two several Women ; and the Estate was settled on the Daughter's Mother and her Heirs.

Mr. J. Moreland answers them both the same Way: To whom we are obliged for the Hints communicated ; but it is not to our Purpose to regard what is printed in other Places ; besides, this Gentleman lyes under a Mistake, in supposing the Author of the Solutions (on which he remarks) to be the same Person with the Author of a Book of Fluxions of the same Name.

Who won the PRIZES, &c.

WE received only two true Answers to the Prize-Enigma, before Candlemas-Day ; the one from Mr. John Ramsay, of Morpeth ; the other from Mr. James Dawse, of Fisherton : Who are therefore intitled, each of them, to a Prize of eight Diaries (without the Chance of drawing Lots.) The six Diaries, for the Solution of the Prize-Quære, were won by Miss G. L. of Plymouth. But, to the Prize-Question, we did not receive one true Solution, (nor indeed any Attempt towards a Solution, except one) within the Time prescribed.

This unusual Backwardness and seeming Deficiency in the Contributors we are not at a Loss to ascribe to its true Cause, being sensible that the most unjustifiable Methods have been indefatigably pursued, in order to baulk, and, if possible, to utterly extirpate the Ladies Diary ; and this, in a great Measure, from a Motive of Revenge, by a Person, whose irregular Behaviour and wanton Licentiousness had justly drawn upon himself the Check and Repentment of superior Power.

It is not without Concern that we likewise perceive, that several Names which, once, did Honour to this Diary, are now no more to be seen in the Number of Contributors. Whatsoever Reasons of Disgust those Gentlemen might have, it is humbly presumed those Reasons are, now, no longer subsisting. The present Compiler, whatever his Abilities may be in Science, hopes to make it appear, by his Conduct, that he means well, and is equally free from Partiality and Ill-Nature. He is not (as has been maliciously given out, and advertised in several publick Papers) an Enemy, but a Friend to the Cause of the Widow of the former Compiler, Mr. Beighton ; which cannot be said of that virulent Detractor, who durst, without her Consent or Knowledge, make Use of her Name, in order to abuse her real Friends, and to get all the Diary-Letters into his Hands, at the same Time when he was designing the utter Ruin of the Diary ; for which, by the Favour of the Stationer's Company, she still continues to receive the same Annuity, or Stipend, as was paid to Mr. Beighton himself, for compiling the Work.

Some valuable Letters, this Year, did not arrive 'till after the Diary-Copy was delivered in ; amongst which, one from Mr. Hartley, of Tarum, merits particular Notice ; wherein the greater Part of the Solutions are no ways inferior to Those printed in the preceding Work.

Errata. In the Solution to Quære 2, L. 2, for *of* read *for* ; and in Page 17, L. 9 and 10, for *May* read *June*.

The GENTLEMAN and LADY'S ALLADIUM

For the Year of our LORD 1754;

Containing (besides what is *usual*) the Abuse and Use of History; an Account of the Origin and Family of *Pride*; on *Drunkennes* and *Gaming*; a *Dream*; the *Muses Banquet*; of *Story-telling* and *Satyr*.—With the Tradition of LORD SHORELAND'S MIRACLE at *Sheepy-Island*, in *Kent*, in the Reign of Queen *Elizabeth*, by which the Prophecy of his Lordship's Death was there fulfilled.

To which is added,

a complete EPHEMERIS for *Sea* and *Land*; with all the Aspects of the *cælestial* Bodies.

For the Benefit of both *Sexes*, and Use of *Schools*.

The Sixth Number published.

By the late AUTHOR of the LADIES DIARY.

1. GODDESS of Science, *Pallas*! aid the Muse,
Windsor the Taste of *Upnor* will excuse.



2. In *Kent* the ROYAL MADERINE * was wrought,
Stupendous Work! by Land and Water brought.
* Or *Sampan Yatch*.

3. To flew thy Power and aggrandize thy Name,
And tell to distant Nations Britain's Fame.

4. If *Shipwrights*, *Seamen*, can such Wonders do!
Bid *Pedants*, *Coxcombs*, with their Arts, adieu,
Remember *Pbaeton*, nor hope to drive
The Sun's Grand *Chariot*, and escape alive.

LONDON, Printed for J. FULLER, at the Bible and Dove in
Ave-Mary-Lane. MDCCLIV. 1. N^o.

THOMAS HUNTLEIUS,

AUCTORI ΤΗΣ Ἐφημερίδος τῶν Γυναικῶν.

S. P. D.

QUANDO tu quidem, *Vir optime*, nomen meum inter patronos codicum tuorum anno proximo referre dignatus es, eò factus audacior; compluribus aliis explicationibus te dono, iisque subjunxi tria quatuorve nova problemata, ænigma unum et unam questionem: ex quibus omnibus optima quæque tibi delibanda relinquo. Gratias ago singulares, quod enodationem quæstionis 48 *Palladii*, suppressisti; ac mihi pergratum erit, si omnes, quotquot sunt accurationis expertes, tenebris occultes, seu potius dummodo vacet, de iis me certiore faceres, quò tempestive emendatas reddam. Sermone Romano usus sum, ut juniores æquales meos, ad studium istius linguæ nobilissimæ excitarem; sin autem sermonem peregrinum minùs idoneum judicas, quo sive problemata sive resolutiones in publicum proferantur, petendum est consuetudini inter transcribendum tradas *Anglicanæ*. Quod si feceris, magnus ad priora tua erga me studii cùmulus accedet. *Vale.* Dabam de *Burfordiâ*, in provinciâ Oxoniensi, pridie Calendas *Aprilis*, Anno post natum Christum 1753.

P R E F A C E

P R E F A C E.

THE GENTLEMAN and LADY'S PALLADIUM was originally designed as a Companion for the *Ladies Diary*, in the room of the other Diary, awkwardly projected from that Plan. But its Mention being every where struck out from the *Diary Copy*, 1753, (since the *Imprimatur*) the *Palladium* then became a *NOUVEAU SUBSTANTIVE*. With which Performance our *Ladies Chronologer*, in *English*, with a *French Almanac*, binds in Connexion, instead of the said *Ladies Diary* any longer; which is now considered as Nothing relating to these our Productions, but as it may be purchased by some Few of its former Friends, to compare the Difference betwixt them.

The *New* and *Full Moons*, in our *Ephemeris*, are carefully computed from Doctor *Halley's* Tables, and reduced to *apparent Time*, of the *ecliptic* Conjunction and Opposition; whereas Dr. *Halley's* Method finds only the *Orbit* Conjunction and Opposition, which are here reduced to the *true*, by the Moon's Argument of Latitude. So that the true Time of *Change* and *Full Moon* is about 14 Minutes sooner, or later than the Time of *Orbit* Conjunction and Opposition, according to Dr. *Halley*.

For Example.—The equal Time of N. Moon 23d Jan. is, by Dr. *Halley*, 9h. 30m. Morn. but by the *Reduction* of the Moon's Place to the *Ecliptic*, it is 6 Min. sooner, or 9h. 24m. from which deducting of 12m. the Equation of Time, the Residue will be 9h. 12m. the apparent Time of the true *New Moon*. N. Moon 22d Feb. is 14m. sooner, by Reduction, than by Dr. *Halley*. N. Moon 22d April is 7m. later. Full Moon 6 May is 11m. later. N. Moon 22d May is 14m. later. Full Moon 1 Sept. is 13m. and half sooner; where an Allowance is made for the *Reduction* and *Equation* of Time.

Hence appears the *Fallacy* of the common *Almanacks* and *Ephemerides*, in the Times of the Lunations there published, whose Writers (if they understood how to compute) are paid a Price so very low for their Performances by the Agents for an honourable Society, that it is not worth their While to consult Truth.

The *English Calendar* we have corrected according to the late *Style-Act*, which is published as an *Almanac* in the *French Tongue*, in our *LADIES Chronologer*, with an Explanation of the general Terms of the *Almanac*, in a *French and English Vocabulary*, subjoined. All the lunar Aspects of the Planets are published in the Inter-spaces of the Planets Places for the Year against the Day of the Month, with the Hours under the Signs of the particular Aspect, when each happens. This we have done for the Satisfaction of the curious Observer, and not for Ends of judicial Astrology.

The *Moon's Places* are computed this Year, by a new Theory to compare with Observations.

N. B. Our Friends and late Correspondents of the *Ladies Diary* are desired to direct their Letters for the late Author of the *Ladies Diary*, [franked, or Post Paid.] to be left at Mr Hallifax's, Clock-maker, at the Dial in Fleet-street, London.

THE
GENTLEMAN and LADY's
PALLADIUM,

For the Year 1754.

Ænigma Latinum. à Dom. THOMA HUNTLEIO.

SUM Nive candidior, Satrapaque superbior alto,
Ater ubi Remex sulcat mibi Fluminis Undas :
In se meum cuncto Funus, modò credere doctis
Animidum placeat filiis ; quo Nomine dicor ?

Questio. Ab Eodem.

Qui sit, nostrates moribus Gallicis tantoperè delectentur ?

New Ænigmas (for the Cultivation of the *Invention* and *Judgment*) to be answered in the next Year's PALLADIUM.

A PASTORAL OF ÆNIGMATIC DIALOGUE, I.

Between *Amanda* and *Lucinda*, lamenting the *hard Fate* of a *LADY*, not long ago the *Darling* of the *FAIR-SEX*.

Lucinda. TELL me, *Amanda*, what 'tis racks thy Breast,
Has some strange antic Fury dispossess'd
Thee of thy Reason ? Can't *Lucinda* find
A Balm to cure thy much distemper'd Mind ?
Thou that hast born the sharpest Shocks of Fate,
And found Content even in a homely State ;
Thy Heart not now susceptible of Love,
What more remains that can the Passions move ?

Amanda. Ah ! Nymph the *Lady* ! Which we both admire,
That led the *Dance*, and strung the tuneful *Lyre* !
That gave Instruction both to *Gay* and *Grave*,
Is now depress'd, and made an abject *Slave*.
Hast thou not heard of *Strepson*'s glorious Name,
Strepson the chiefest Favourite of Fame,
Strepson the *Brave*, the *Generous* and the *Young*,
The noble Theme of every *Shepherd*'s Song ?

Lucinda. I've heard some Rumours, but my humble Mind,
To Flocks and to domestic Cares confin'd,
Permits not me to mark Affairs of State,
But leave them to perplex the *Wife* and *Great*.
Yet from thy Mouth how gladly would I hear
Those moving *Ills*, that touch thy Heart so near.

Amanda. The Noble *Strepson* bears an ample Share,
In every Danger, every anxious Care

That

That tortures *greedy* Minds; yet ne'er did know
 The *Sweets* which from *unbounded* Affluence flow;
 Proscrib'd and absent from his Place of Birth,
 Scarce finds a safe *Assyle* throughout the Earth.
 Mean while the *Satyr Faunus* does possess
 His Rights, and drives his Flocks to great Distress:
 The Sheep of *Strephon* now becomes his Prey,
 Reluctant, their new *Pastor's* Voice obey.

Lucinda. But what's the Motive of *Lucina's* Care?
 That Nymph who shone so *Bright*, so *Great* and *Fair*!
That once was gay and pleasant as the Light,
 But now o'ershadowed with a gloomy Night.

Amanda. *Alas!* that Grief by which she is oppress'd,
 Hard to conceal, unsafe to be express'd,
 Shall be entrusted to thy *faithful Breast*.
Beauteous she was, adorn'd with native Charms,
 And, *Pallas*-like, skill'd both in Arts and Arms!
 Such was her State, when from a *Wood* remote,
 Some luckless Star, the *Satyr Faunus* brought.
 Th'*unwary* Nymph admits him as a Friend,
 Unthoughtful of the Dangers that impend;
 Till, by the fatal *Guest*, disarm'd and thrown,
 She's wounded by the *Weapons* once her own!
 Then takes he Seizure of her *Flocks* and *Droves*,
 Her flow'ry Pastures, and her shady Groves.
 And now subjected to the *Tyrant's* Pow'r,
 She sees his *Dogs* her tender *Sheep* devour.
 Nor can she their *Calamity* redress,
 Nor dares she, openly, her *Griefs* express.
 But Streams, that *silent* pass, are most *profound*,
 And *Griefs* restrain'd and mute, the deepest wound.
 Compell'd she drags the *Satyr's* pond'rous Chains,
 But, in her *Breast*, the generous *Strephon* reigns.

ÆNIGMATIC DIALOGUE II. By *Uphorenfis*.

Wildair. CAN you *Ardelia*, freely part
 With what would fix me to your Heart?
Ardelia. Speak out, or else how should I know,
 Whether I'll spare it you or no.
Wildair. Look here, behold what I request,
 A Thing of which we're both possess'd;
 What shall exhaust not much your *Treasures*,
 What you may give and take at Pleasure.
Ardelia. I know I can—but dare not do it,
 Vain all Attempts—no more pursue it—
 Thousands are ruin'd every Day
 By only lending it—away.
Wildair. Though some are Sufferers—some are bless'd,
 'Tis of all *Lotteries* the best:
 For if good Fortune chance to rise,
 You may, for *Nothing*, gain a *Prize*.

The GENTLEMAN and LADY'S

Ardelia. Do you that *Substance* Nothing call
Which can the greatest Prince enthrall?
Can either Life or Death bestow,
Insure Felicity or Woe?

Wildair. I dare—for no Man, now alive,
Asserts 'tis more than five to five;
An even Wager! give Consent,
Prudence will every Ill prevent.

Ardelia. Shall I, for Life, at Hazard play?
No *Wildair*,—if you will you may—
But I whom Reason's Dictates rule
Can see the wise Man and the Fool.

Wildair. If such a *Boon* you can deny,
Adieu Ardelia! (*Ard—*) *Wildair* fly!
Return and take what 'tis you ask,
Surely to love is no hard Task.

Kent, May 25,
1753.

III. ÆNIGMA. By *Fidelia*.

1. NEVER were Sisters two belov'd,
Or more esteemed than we;
No, not the *Gunning's*, lately mov'd
To Orbs of Dignity:
2. For Princes at our Levee wait,
With all the nobler Race,
And the Great Officers of State
Solicit our Embrace.
3. Nor are we to the Peer alone,
But to the Peasant Friends,
And from the Cottage to the Throne
Our Influence extends.
4. Not One, who this Ænigma reads,
Is ign'rant of our Use;
Yet we must own for *some Misdeeds*,
We may deserve *Abuse*.
5. Our Title we like Quality,
From former Kings derive,
However, in Reality,
Our Donor's now alive.
6. Have you not heard that sometime since
(Who knows not the Design)
A jocular and hungry Prince,
Once knighted a *Sufoin*.
7. Perhaps from such an Incident,
Or Appetite as keen,
My Grandeur rolls on by Descent,
From *England's* King and Queen.
8. For to high Life we claim a Right,
Nor let this cause your Wonder;
For like some Pairs both Day and Night,
We often are afunder.

IV. ÆNIGMA.

IV. ÆNIGMA. By Miss Anne Hulfe.

1. UPON the Surface of the Globe,
Between a Wood and rising Ground,
I in a mean or costly Robe,
Each Day may readily be found ;
2. The Vale is pleasant to behold,
Where I my Situation take,
There Diamonds, Rubies, Pearls and Gold,
In various Forms Copartments make.
3. There all which Nature can produce,
Or human Artists can invent ;
If fit, — tho' trifling be their Use,
Without Regret to me are sent.
4. But what are these, when justly weigh'd
Against a far superior Bliss,
They *Flora's* Beauty only aid,
But I from *Flora* steal a Kiss.
5. In me the reigning Toast delights,
For I'm the Darling of the Fair ;
The wither'd Matron too invites,
And makes me her peculiar Care.
6. Yet tho' I boast of Happiness,
Descending from a Noble Race,
Spite of the Grandeur I profess,
I often fall into Disgrace.
7. Supplanted by some rival Art,
Of the same Stock, but more polite, —
I am commanded to depart,
Forc'd to deliver up my Right.
8. Yet this *Ufurper*, in my Stead,
Who seems to reign with equal Sway,
If *Flora* takes it in her Head,
Is but the *Sovereign* for a Day.

V. ÆNIGMA. By Mr. John Ramsay.

TO Fish, Worms, Horse, Earth, I owe my Production,
But to the *Mechanics* I owe my Construction.
My Body is slender and conical made,
And my Head's of the Fashion—to make a Parade.
My Cap sometimes silver, and Rings I do wear,
And I'm dress'd in a *Ribband* to please the fine Fair !
My Vertex is green, as 'tis otherwise blue,
Or 'tis red or 'tis black and of various Hue.
My Skin is quite rough and appears full of Eyes,
More than *Argus* 'ere had, to enhance your Surprize !
But to tell you my Trade you will set me at Nought,
Since my whole Occupation's to mend those in Fault ;
And good *Christian* Discipline sometimes I give,
The Slave and the Sinner my Virtue receive.
Now Ladies if you my true Name will discover,
I'll commence your true Friend and warm your cold Lover.

VI. ÆNIGMA.

VI. ÆNIGMA. By *Eboracensis*.

1. One of my great *Grand-Mother's* was
For preaching much renown'd;
As some have been for lesser Cause,
With godly *Mitres* crown'd!
2. No *Methodist*, or *Quaker* I,
Though I like both can prate,
My *Eloquence*, if Fame don't lie,
Preserv'd a tott'ring State.
3. Yet you will find me spoken of
In Terms of *Ridicule*,
Am made a Jest, or turn'd to Scoff,
Like the *pedantic* Fool.
4. *Landin* and *Turner* wise appear,
Compar'd with weaker me,
As Qualities of all Kinds are,
Known but by their Degree.
5. The *As* for Burden, *Horse* for Speed,
Yabos for Mockery made,
While you observe each nobler Steed,*
Lefs Virtue will degrade.
6. No Fault I have that I can tell,
Unless I be too *loud*,
No Man that ever mark'd me well,
Can think me vain or proud.
7. For though a lofty Look I bear,
(Which some may call *aspiring*!)
When I the *poorest* Hut draw near,
You'll find me worth admiring.
8. There you'll behold I'm *modest* too,
And very rarely venture,
Without a very humble *Bow*,
At any Door to enter.

ÆNIGMA VII. By *Upnorenfis*.

1. YE Females who in me delight,
Discover, if you can, my Name,
Descended from an ancient *Knight*,
Lately your Fav'rite I became.
2. Whether 'tis for my Birth, Success,
Or Loyalty, I'm honoured most,
'Tis plain more Titles I possess
Than *Spain's* proud Monarch 'ere could boast.
3. My Trade and Rental are so large,
Were I Particulars to tell,
The annual Profit and Discharge,
Would more than to a Volume swell.
4. Though I not covetous of Pelf,
But with a generous Spirit blest,

* *Of the Hymmnns.*

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- First pay my Servants, clear my Self,
Then give the *Public* all the Rest.
5. Thousands by me have Fortunes rais'd,
Thousands by me have been undone,
I'm lov'd and hated, curs'd and prais'd,
But thrive again and value none.
 6. Whether I do more good than Harm,
Has been a Matter of Debate;
Though I the coolest Heart can warm,
And make the silent Woman prate.
 7. As to Religion I'm a *Quaker*,
And act just as the Spirit moves me;
Busy enough! yet no Pains-Taker,
Though some of all Persuasions love me.
 8. No longer to distract your Head,
But the grand Secret to impart,
I *Salamander* like, am bred
By Fire,—and kept alive by Art.

ÆNIGMA. VIII. By Mr. Christopher Mason, of East-bourn, Suffex.

I AM still in Expectation, but never in Fruition.

*** Whoever sends Answers before Candlemas next will have a Chance by Lot, for five, four, and three Palladiums, of equal Value with ten, eight, and six Ladies Chronologers.

PRIZE-ÆNIGMA. By χρονισμοισονπυβλινθ.

WITHIN an ample *Pile* I bask in State,
Vic with *Bashaw*, or *Grander Potentate*;
If my *SUPERIORS* do but thwart my Will,
I soon with Terror their *Republic* fill;
I sit enthron'd, my mimic *Pride* behold!
As, to my self, I tell my Masters Gold.
I turn about me as the Humour bites,
And live upon the Public's *annual Rights*.
As *Mountebanks*, the Country *Marts* attend,
And to the gaping Crowd their *Pacquets* vend,
Unmindful of Effects they may produce,
Regardless of their Nature, or their Use,
So I my *Doctrines*, true or false, disperse,
Whether in paltry *Prose*, or meaner *Verse*,
Talk Nonsense, play the Fool, and prate and puff!
And if I get then off, 'tis well enough.

To the *Good Workman* I am most uncivil,
For he'll be pay'd,—and Payment is the Devil.
Give me the Men, who will for Two-pence ply,
Tho' all in Rags,—if at my Feet they lie,
And pay me Adoration,—I'm Content—
By such I gain,—Be what will the Event.
To serve myself, you'll hear me oft pretend,
“ I'm your's, Another's, or the *Widow's Friend*.”

The GENTLEMAN and LADY'S

I call for Gratitude where that I owe,
And vast Advantages reward but low.
Proof-sense, I alter by my Critic Head,
And fix an *Odium* where was Nothing said ;
By Arguments fallacious " find the Thief,"
And fill my Masters with a false Belief :
While to the Ladies I commence a Foe,
And binder them of what I cannot do.
Whether I'm Man or Monkey, Jew or Turk,
They best can tell for whom I've done their Work.

The ROYAL ORACLE, or QUERIST,

I. *Quere 46.* By Mr. J. P.

WHY do the unhappy, yet reasonable Part of the female Sex, prostitute their Minds and Health, as Companions to several Men, indifferent and dangerous, and neglect their Interest and Safety, in seeking one Friend ? And why should they act more indiscreet than a burnt Child that dreads the Fire ?

II. *Quere 47.* By Miss J. P.

WHY should Gentlemen of Reason and Science perswade or tempt young Ladies to act against their true Happiness (finally to disturb their own) and then condemn them for so doing ?

III. *Quere 48.* By *Honorius.*

WHY should Censure be so grateful to, and so much practised by, some of the prettiest of the Fair Sex ?

IV. *Quere 49.* By *Prudentia.*

WHY should Gentlemen boast of Favours from the Ladies they never received, which is the only Way to lose their Favour ?

V. *Quere 50.* By *Constantia.*

WHETHER if Men would practise the Complacencies and Endearments in the Marriage State, to their Wives, they practised before that State to them, as *Mistresses*, it would not be happier for themselves ?

VI. *Quere 51.* By *Honestus.*

WHY should the Scriptures be ridiculed or degraded by *Profligates*, when they contain only *Lessons* and *Examples* for the general Good of Mankind ?

VII. *Quere 52.* By *Britanicus.*

WHICH Way, and how, may the national Honour, Strength, and Riches be increased ?

VIII. *Quere 53.* By *Publicus.*

HOW should Power be dealt with in the Hands of the best Governments ?

IX. *Quere*

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IX. *Quere* 54. By Mr. George Brown, of Oxford.

WHENCE came the Custom of wearing Stays, by the Ladies in England, unknown to many foreign Nations? And whether they do Good or Hurt to the Sex?

* * * *Whoever sends Answers to the following before Candlemas next has a Chance by Lot, to win Six Palladiums.*

PRIZE-QUERE. By *Abdiel*.

HOW came SIN in Heaven?

NEW QUESTIONS, (for the Cultivation of the *Invention, Reason and Judgment*) to be answered in next Year's PALLADIUM.

I. QUESTION 76. By *Honestus*.

A Gentleman has 1000*l.* due by Legacy, at the Decease of a healthful Person of 46 Years of Age, who would be glad to receive the Payment thereof by an equivalent Value in an *Annuity*, during the Life of that Person; *how much* is the *Annuity* he ought to receive, allowing for the Interest of Money 4*l. per Cent.* supposing the *Annuitant* to be the longest Liver?

II. QUESTION 77. By Mr. William Honnor.

IN a small Isle a stately Oak does grow,
Whose Height and solid Feet I fain would know;
Which from these Data* may be made appear,
In your most fam'd Palladium for next Year.

* The Diameter at the first Station appeared under an Angle of 1 Deg. and the Altitude 13 Deg. 6 Min. at the second Station the Diameter appeared under an Angle of 1 Deg. 24 Min. 44 Sec. The Stations were 100 Feet asunder, and if two right Lines were drawn between the Tree and first Station, and between the first and second Station, they will include an Angle of 44 Deg. N. B. 5 Feet must be added to the Tree's Altitude found for the Height of the Eye from the Ground, being level with that whereon the Tree grew.

III. QUESTION 78. By Mr. Joseph Hilditch.

ON the 20th of January 1753, at Night the Altitude of Pollux, † was observed to be 60 Deg. 21 Min. and that of the Lion's Heart, 38 Deg. 50 Min. required the Latitude of the Place*, and Time of the Night, where and when those Observations were made?

† East of the Meridian.

* Under the Meridian of London.

IV. QUESTION 79. By Mr. Charles Mason, of Sapper-ton, Gloucestershire.

A LADY's Shade was found to be just half her Height, when SOL was due East, on the very same Morning that he rose at 20 deg. Azimuth from the East Northerly; and it was found that the Sum of the

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Square Inches of the Lady's Height, and of her Shade, aforesaid, were $3\frac{1}{2}$; The Latitude of the Place, and Day of the Month, *where* and *when* this happened, are required? and also the Value of that Lady's Fortune in the *greatest* Conical Frustum of Gold possible, the slant Side whereof is the *thirteenth* of her Height, and the Breadth of the Lesser Base exactly two Inches: A Cubic Inch of Gold being valued at 40 l.?

V. QUESTION 80. By Philotheoros.

A Balance-Master descended from the Top of a Tower, to the Level of the Bottom, down a strait Rope, making an Angle of 30 deg, with the Plane of the Horizon, in a certain Time, and in *one Second* of Time less, he descended again from the Top of the same Tower to an *Eminence* one Quarter of the Tower's Height from the Level of its Bottom; the Rope making the same Angle with the Plane of the Horizon as before: *Required*, the Times of Descent, and Height of the Tower?

VI. QUESTION 81. By Anagrammfs, Holy in Heart, Ebor.

IN what Latitude, on the 10th of April, 1754, is the Forenoon longer than the Afternoon by 23 min. 24 sec. and longer than the next preceding Forenoon by 25 min. 33 sec.?

VII. QUESTION. 82. By Chesterfieldiensis.

GIVEN two Lines bisecting the *Acute Angles* of a right angled triangular Field, drawn from those Angles to the Sides opposite, 50 and 40 Poles, required the *Fences*, and *Acres* contained?

VIII. QUESTION 83. By the same Gentleman.

GIVEN $x^2 - 1000x = x^2$, Quere x and x , in Integers, with two general Theorems for finding their Values, and to be so conditioned, that the said Theorems may neither have the Square of the Quantity assumed, nor the Square of the given Quantity contained in them; as also their Investigation, and all their Values, in *whole* Numbers, deduced therefrom?

IX. QUESTION 83. By Mr. Hanvill, London.

THE Sum of the *Bases* ($=AB$) the Sum of the *Perpendiculars* ($=BC$) and the Sum of the *Areas* ($=a$ Square, $abcd$) of two similar right angled Triangles, being given, thence to construct the Triangles?

QUESTIO X. et 84. à Dom. Huntleio.

LATRONES duo A et B, societate initâ, manâ iter diversum, prædam venaturi, instituunt: A primò; currum nactus, viatores pecuniâ quadam spoliabit, nec. multò post, nobilem quendam virum radice superiores summæ quadrata $+ \text{£ } 6$; B autem in duos mercatores C et D incidit, quorum ille $\text{£ } 64$ et hic $\text{£ } 44$ secum habuit; de priore abstulit duplo majorem summam quàm de posteriori, huic tamen reliquit duplo majorem quàm illi; porro autem præda latronis A erat $\frac{3}{4}$ prædæ latrunculi B; sed convenientes ad spolio partienda, inter se litigabant, ex quo uterque, quantum poterat, reliquit; sed tandem lite compositâ, consentiebant A deponere $\frac{2}{3}$ de nummis à se

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se raptim collectis, et B dimidium suorum; ac dein summam ex æquo bipartiri; cujus dimidio reliquis utriusque addito æqualibiter præda dispartita fuit jam scire aræo quantum pecuniæ diripiebant ambo?

XI. QUESTION 85. By Mr. L. Nicholson.

REQUIRED the Area and Construction of the Curve, expressed by the Equation $2axy - ay^2 = x^3$?

XII. QUESTION. 86. By Mr. Charles Smith, of Rugby.

WHAT are the six Geometrical Proportionals continued, $abcdef = 12230590464$, and $ab = 9$?

* * * Whoever sends Answers before Candlemas next has a Chance to win 12 Palladiums.

PRIZE QUESTION. By Londinenfis.

THE Profits of 1500 £. vested in the public Stocks, are enjoyed by an Old Woman of 60, after whose Death the Capital is to be equally divided among her surviving Daughters, at present 5 in Number, their Ages differing about a Twelve Month from each other, and the youngest is 35. The present Worth of this Daughter's Expectation is required? Supposing the Current Interest of Money to be $3\frac{1}{2}$ per Cent. and the Stock to be at Par, at the Time of the Mother's Death?

NEW PARADOXES to be answered in the next Year's Palladium.

PARADOX I. By Mr. A. Brooke.

TWO Kings never died,—never will,—nor are they still living!

PARADOX II. By Miss J. P. of Rochester.

I saw the Moon rise and set three Times in the same Evening!

ANSWERS to all the Enigmas in last Year's PALLADIUM.

- I. 51. A Poet.
- II. 52. A Lady's UNDER-PETTICOAT.
- III. 53. A PATRIOT, or MAN of HONOUR.
- IV. 54. A Lady's NEEDLE.
- V. 55. A Lady's MASK.
- VI. 56. TRUTH.
- VII. 57. AN AURICULA.

- VIII. 58. A THORN in the FOOT.
- IX. 59. A RIVER.
- X. 60. The TONGUE.
- XI. 61. A PEN.
- XII. 62. A TURN STILE.
- I. Lat. A Ship.
- II. Lat. The Earth.
- III. Lat. A Guinea.

Mr. Thomas Huntley solved the first Latin Enigma in Latin Verse, and the 56th in English Verse, which we have not room to insert.

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The PRIZE-ÆNIGMA, in the last Year's *Palladium*, answered by *Serenus*.

THE Quack, who so loud barangues the wild Crowd,
And boasts of his Art, and his Skill;
Whose Medicine destroys, and blasts all our Joys,
Is the Methodist's Poisonous Pill!

Answered by Mr. Christopher Mason.

Enthusiasts cant, *ex Spiritu divino*,
But Hypocrisy shews that 'tis all for the Rhino.

All the Ænigmas answered in the last Year's *Palladium*, by Mr. John Ramsay, of Morpeth.

LET good MEN OF HONOUR do that which is Right.	3.
To the TRUTH of Religion stick close with their Might.	6.
The Maid with her NEEDLE shou'd ne'er go astray,	4.
But keep thro' the TURNPIKE along the right Way ;	12.
With a MASK on her Face, and a FLOWER in her Breast,	5, 7.
Where the THAMES runs along, with a TONGUE well express'd,	9, 10.
Strong Drams, Quack and METHODIST, let her despise !	Prize.
And keep off the THORN-BUSH, I do her advise ;	8.
Let VIRTUOUS ARTS, and the PEN be her Guide	1, 11.
Then each will admire what her PETTICOATS hide.	2.

On the Printing Press set up at Rome, about the Year 1446,
by Uldaricus Gallus, wherein is answered the 11th
Ænigma, by Mr. John Ramsay.

THE watchful Goose once sav'd the Roman Walls,
And brought Destruction on the haughty Gauls ;
Our Gaul revenges by his wond'rous Skill,
This antient Grudge upon the Goose's QUILL ;
For what the Pen requires a Year to say,
His Printing Art delivers in a Day.

All the Ænigmas in last Year's *Palladium*, answered
by Mr. Ralph Hulse.

Tot Homines, Tot Sententiæ !
1. WHILEST busy Mortals strive in vain,
The *Summum Bonum* to obtain,
Each takes a different Way :
Some fondly proud of WHITFIELD's Task, Prize.
(Whose dark Designs lie under MASK) 5.
From TRUTH's pure CURRENT stray. 6, 9.

2. The

2. The *Miser* heaps up GOLDEN ORE, *French.*
 With Rapture eyes his *Shining Store*,
 His *God*, and only Prize :
 By *Prodigal* his Bags enjoy'd,
 And ah ! Himself, like THORN, destroy'd, 3.
 In EARTH forgotten lies. 2 *Lat.*
3. The *Merchant*, with his SHIP of Claim, 1 *Lat.*
 Who at Success directs his Aim,
 Attempts the briny Deep ;
 But one fell Blast in fatal Hour,
 At once destroys each hopeful Flower, 7.
 And interrupts his Sleep.
4. Gay Sparks from Play to Tavern fly,
 And place their sole Felicity
 In NEEDLESS Things that change ; 4-
 From *Glass* to PETTY-COAT they rove, 2-
 And by soft SPEECHES point out Love, 10.
 Still doom'd by Fate to range.
5. APOLLO'S SONS but vainly wise 1.
 Would by their PENS to Honour rise, 11.
 Like MEN OF HONOUR tend ; 3-
 Whose TURN-STYLE Wit and Passions shew, 12.
 Of *Wife* and *Good* there are but *Few*,
 And *Few* that e'er will mend.

R. H.

ANSWERS to the ORACLE-QUERIES in last Year's PALLADIUM.

I. QUERE 35, answered by *Adastrea*.

AMERICA, according to *Grotius*, cited by the late Lord *Bolingbroke*, in his *Reflexions upon Exile*, was originally peopled from *Scandinavia* : Who therein observes (p. 246 of his 2d. Volume) that, in Process of three or four Thousand Years, the same Race of Men have pushed their Conquests and Habitations round the Globe.

II. QUERE 36, answered by *Socius*.

THE Old are permitted to marry, for Example to those who are capable of making better *Use* of their Passions.

III. QUERE 37, answered by *Prudentia*.

MEN are generally esteemed for the Expectations we have from them ; so that by respecting others we love ourselves.

The greatest Gift that Providence can bestow is *Health* and *Understanding*. The Gifts of blind Fortune are treacherous and transitory. Mr. *Pope* observes of the happy Man possessed of a Competency :

*His Life is healthful and his Conscience clear,
 Because he wants a Thousand Pounds a Year.*

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With Affluence associate Diseases, and the Inquietudes attending the wretcheder Part of Mankind. Pomp and Magnificence are *Plagues* that tread upon the Heels of *Ambition* and disturb *Tranquillity*: The profuse Squanderer enjoying the least Part of his Wealth, seldom applied to charitable Uses.

IV. QUERE 38, answered by *Lucinda*.

SHADOWS are the *Privations* of Light intercepted by Bodies; so that the enlightened Parts of those Bodies appear distinct from the shaded Parts. And the Motion of *Shadows* depends upon the Motion of Bodies intercepting the Light (*as the Dancing of some Shadows depends on the quivering of the Leaves of Trees*) causing thereby a Motion of Darkness. The Motion of *Shadows* otherwise depends on the Motion of the *luminous* Body; or on that and the Motion of the *intercepting* Body.

V. QUERE 39, answered by a *Haberdasher*.

WHETHER *Shades* wore by the *Ladies*, are copied from the Trappings of Horses or not, it is certain they serve, like them, to keep off the *Flies*, and attract the *Butterflies* and *Beaus*.

VI. QUERE 40, answered by Lady *Betty Biggot*.

MAHOMATISM propagated in *England*, would equally answer the same Ends with *Judaism* and *Methodism*; that is, to get Money.

VII. QUERE 41, answer'd by Mr. *Geo. Brown*, of *Oxford*.

Mr. *LANDEN*'s Godfather was *Upnorenfis*, who first adopted him his Son, *Maximus Problematicus Waltoniensis*; because he lives at *Walton* near *Peterborough*, and dealt largely in *Cypbers* and *Problematics*. He rejected *Maximus Problematicus*, it seems, for *Waltoniensis*, only, out of great Modesty. His reproaching Mr. *Emerson*, Mr. *Heath*, &c. is from his *Byass* more than *Sagacity*.

VIII. QUERE 42, answered by *Honorius*.

WHEN Man is *Wife-bit* he must find a female Friend where he can, and obey the Laws of God, and of *Nature* as he can. If he has not Money and Interest enough to divorce the *Prostitute* by Act of *Parliament*, he must do it by an Act of *Conscience*.

IX. QUERE 43, answered by *Amicus*.

Unnatural Appetites and Desires cultivated in the Youth of both Sexes, are the Causes assigned for the unnatural Practices mentioned, which are only prevented by an early Cultivation of *Morals*, and the Choice of uncorrupted Schools and Companions.

Nature, since *Eve*, is pregnant with the Devil.

X. QUERE 44, answered by *Chathamensis*.

THE *LADIES* honourably acquit their Friend; but acquit not a prying *Inspector* into their Sexes' Modesty, through a Peep Hole. O Doctor Hole-Peeper!

PRIZE-

PRIZE-QUESTION, answered by *Uphorenfis*.

THOUGHT springs from the *Divine Essence* within us, and is an Agitation or Operation of the *Soul*, or *Thinking Substance*, susceptible both of *Pleasure* and *Pain*; without which, neither that Substance nor its Attribute, *Thought*, could exist: And every *Act of Thinking* is a certain Effort and Operation of Soul, by which we perceive Things existing, as we do, under such particular Modes or Attributes of Being. And hence the *Essential Part* of our Being, from whence Cogitation arises, seems to be independent of what we now perceive as Matter in Motion. For, tho' Matter may be necessarily connected with Soul, or Thinking Substance, in our present Being; yet that Materiality, with its Modes of Motion, being dissolved, or removed from the Substance purely cogitative, the *Consciousness* of our Being will then more immediately exist in; and depend on; the CREATOR, as the ORIGINAL SUPPORT AND GIVER OF ALL BEING.

What is Thought?

The Hermit's Solace in his Cell,
"The Fire that warms the Poet's Brain;
"The Lover's Heaven or his Hell,
"The Madman's Sport, the Lover's Pain.

ANSWERS to the QUESTIONS in last Year's PALLADIUM.

I. QUESTION 58, answered by Mr. F. Holden.

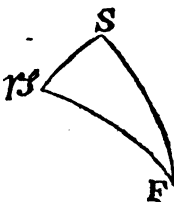
LET P represent the South Pole, E the Pole of the *Ecliptic*, and F the Place of the *Star Fomabant*, at the Time of its first appearing in the given Parallel; then will $PF = 65^{\circ}. 50'. 50''$, $EF = 60^{\circ}$. Lat. of *Fomabant*, $68^{\circ}. 55'. 6''$. by Dr. *Halley's* Tables; and $PE = 23^{\circ}. 29'$. whence the $\angle PEF$ is found, by Spherics, $= 77^{\circ}. 41'. 28''$. which is *Fomabant's* Difference of Longitude from the first Point of *Capricorn*, at the required Time. But, by the above-said Tables, the Long. of *Fomabant*, at the Beginning of the Year 1720, was $= 29^{\circ}. 54'$. or $59^{\circ}. 54'$. from *Capricorn*, which, taken from the above, leaves $17^{\circ}. 47'. 28''$. for the Quantity the Star's Long. must increase, before it can appear in the given Parallel: This divided by $50''$. the annual Increase of Long. gives 1287 Years nearly; which added to 1720, gives the required Time, at the End of the Year 3000.

But, if $33'. 45''$. be allowed for the *Star's* horizontal Refraction, the Side PF must be taken $= 65^{\circ}. 17'. 5''$. which will give the $\angle PEF = 76^{\circ}. 16'. 38''$. with which proceeding as before, we shall get something above 1179, to be added to 1720, which will bring us to the former Part of the Year 2899, for the Time required, Q. E. F.



Mr. T. COWPER's, the Proposer's Solution.

IT is evident, that this *Star* will appear in the given Latitude, when its Declination becomes equal to the Complement of that Latitude; but the horizontal Refraction, elevating the *Star* $33'. 45''$. causes its first Appearance a great many Years sooner.—Therefore, if to the Complement of Latitude $24^{\circ}. 9'. 10''$. we add $33'. 45''$. the Sum will be $24^{\circ}. 42'. 55''$. the *Star's* Declin. when it will first appear. To find the Longitude of the *Star* answering to that Declination. In the annexed Triangle, $SVF = 23^{\circ}. 29'$. the Obliquity of the Ecliptic; $\angle VSF = 68^{\circ}. 55'. 6''$. the Co-Lat. and $FS = 68^{\circ}. 17'. 5'$. the Complement of the *Star's* Declination; whence $\angle SVF = 76^{\circ}. 16'. 38'$. the Distance of *Fomabant's* Longitude from the first Point of $\angle V$, and its Longitude $\propto 16^{\circ}. 16'. 38'$. Now by Dr. *Halley's* Tables, the Longitude of this *Star*, in 1720, was $\approx 29^{\circ}. 54'$; therefore it will be advanced in Longitude $16^{\circ}. 22'. 38'$. the Precession of the Equinox being $50''$. annually, it will be, as $50'' : 17^{\circ} :: 16^{\circ}. 22'. 38' : 1179$ Years, which added to 1720, the Sum 2899 will be the Year in which *Fomabant*, by Refraction, will first appear, at *Torneo in Lapland*, confirming the Truth of Mr. *Holden's* Solution. Q. E. F.



Mr. *John Wigglesworth* solved it. The present Latitude of *Fomabant* being mistaken for $30^{\circ}. 59'$. this Solution was judged impossible; because it was rightly observed by the Remarker, the *Star* could never appear when its Declination South exceeded the Co-Latitude $24^{\circ}. 9'. 10'$. North.

II. QUESTION 59, answered by Mr. Fr. Holden,

Post

PUT $a = 7,6928$ Minutes, As $20' : 1 :: a : \frac{a}{20}$ Post, A makes in the Time a ; and consequently B, $\frac{a}{25}$, and C, $\frac{a}{30}$; so that A, B, and C, working together make $\frac{a}{20} + \frac{a}{25} + \frac{a}{30}$, Post of Paper in the Time a ; therefore 1 Min. $\frac{\frac{a}{20} + \frac{a}{25} + \frac{a}{30}}{a} =$ Post of Paper, by D, in a Time; whence 1 Min. $\frac{a}{20} + \frac{a}{25} + \frac{a}{30}$ Post : $a :: 1 :$

$$\frac{a}{\frac{a}{20} + \frac{a}{25} + \frac{a}{30}} = \frac{300a}{300 - 37a} = 150,187, \&c. \text{ Mi.}$$

$1, - a \times \frac{1}{20} + \frac{1}{25} + \frac{1}{30}$

minutes, D takes, by himself, to make the Post of Paper required.

Resolution,

Resolutio, à Dom. Thoma Huntleio.

Substituatur a pro min. 20, b pro 25, & c pro 30, et s pro mom. 7,6928, sitque x tempus quo D opifex Papyri scapum marte suo elaborabit; tum has nanciscimur proportiones, nempe

$$\left. \begin{array}{l} a \\ b \\ c \\ x \end{array} \right\} : 1 :: s \left\{ \begin{array}{l} \frac{s}{a} \text{ Ergo } \frac{s}{a} + \frac{s}{b} + \frac{s}{c} + \frac{s}{x} = 1, \text{ Papyri scapum;} \\ \text{dein multiplicando,} \\ \frac{s}{b} \text{ per } a, b, c, \text{ et } x, \text{ quò quantitates fractæ evanescent.} \\ \frac{s}{c} \\ \frac{s}{x} \end{array} \right.$$

$$bcxs + acsx + absx + abcs = abcsx; \text{ unde } x =$$

$$\frac{abcs}{abc - abs - acs - bcs} = 150 \text{ mom. ferè, seu 2 hor. \& 30 m.}$$

Ejusdem Resolutio Arithmetica.

$$\text{Ut } \left\{ \begin{array}{l} 20 \\ 25 \\ 30 \end{array} \right\} 1 :: 7,6928 \left\{ \begin{array}{l} \text{mom.} \\ ,38464 \text{ partem Scapi ab Aspatio 7,6928 confect.} \\ ,30771 \text{ partem à B confectam.} \\ ,25642 \text{ partem à C confectam.} \end{array} \right.$$

$$\begin{array}{r} 1.00000 \\ ,94877 \end{array} \quad ,94877 \text{ summa 3 partium, quâ ab 1 deducta, restabit portio à D conficienda} = ,05123;$$

Denique $0,5123 : 7,6928 :: 1 : 150 \text{ min. ferè, five 2 h. 30 m. sicuti supra.}$

Mr. *John Wiggleworth* solved it in the same Manner, as the former Part of Mr. *Huntley's* Solution. Mr. *Jo. Hilditch*, Mr. *T. Cowper*, Mr. *Phil. Williams*, Mr. *Ja. Robinson*, Mr. *Alex. Rowe*, Mr. *Gba. Smith*, Mr. *Hen. Watson*, and several others solved it.

III. QUESTION 60, answered by Mr. *James Robinson*.

LET $120 = b$, $\frac{1}{12} = c$, $\frac{1}{20} = d$, $\frac{1}{4} = e$, $\frac{3}{8} = f$, $3000 = g$, and $x = \text{No of Cabbages}$, and $3x = \text{No of Brocoli Plants}$, then, per Question, $4x - 4fx - 4xe - dx - 3cx + g = \frac{3x}{2}$, reduced $x =$

$$\frac{g}{4f + 4e + 3c + d - \frac{1}{2}} = 10,000, \text{ the Cabbages; whence } 30,000, \text{ the Brocoli Plants. W. W. R.}$$

Solutio à Dom. Huntleio.

VOCENTUR *Brocoli* $12x$, (si voce tum barbarâ uti licet) erithr numerus *trassicarum* $4x$, et $\frac{1}{12}$ *Brocolorum*. $120 = x -$

$$\frac{1}{20} \text{ brassicarum} + 120 = \frac{4x}{20} + 120 = \frac{x}{5} + 120; \frac{1}{5} \text{ totius summæ}$$

$$= \frac{16x}{4} \text{ five } 4x; \text{ denique } \frac{1}{5} \text{ summæ totalis} = \frac{16x \times 3}{8}, \text{ vel } 6x;$$

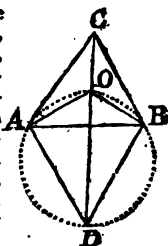
jam summa quatuor novissimarum quantitatum redit ad $11x + \frac{x}{5}$,

feu potius $11,2x$, quæ si de plantariis utriusque generis subducatur, restabit $4,8x$, et addendo reliquiis 3000, hanc æquationem obtinemus $4,8x + 3000 = 6x$, ubi valet $12x = 30,000$, plantas apud nostrates *Brocoli* vocatas, et $4x = 10,000$ *brassarum*. Q. E. I.

The same was answered by Mr. Edward Gillyat, Mr. Phil. Williams, Mr. Cha. Smith, and several others, whose Names may be seen in the Catalogue of Contributors in our *Ladies Chronologer*.

IV. QUESTION 61, answered by the Proposer, Mr. Joseph Orchard.

Construction. Make $\triangle ABC$, whose Sides are equal to the given Numbers, viz. $AB = 36$, $AC = 34$, and $BC = 32$; on one Side, as AB , make an *equilateral Triangle*, with its circumscribing Circle. Draw the right Line DC , cutting its Periphery in O , and join AO , BO , with right Lines; then will AO , BO , and CO represent their three Ages, having the same Relation to the Sides of the Triangle they are contiguous to, as x , y , and z , has, respectively, to the given Numbers, in the Equation; as may be easily proved.



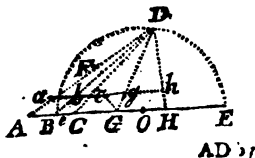
Method of Solution. In the $\triangle ABC$, all the Sides are given from whence the Angles are found; then in the $\triangle DBC$ the Sides BD , BC , and $\angle CBD$ are known, whence DC and $\angle BDC$ are found; also, in the $\triangle BOD$, the $\angle$'s at O , and D , and Side DB are known; as may be easily de-

monstrated. Whence the three Ages of the Ladies are nearly, 21, 8, 19, 6, and 17, 2, required.

Mr. F. Holden, by squaring the three given Equations, (making their Squares respectively $= a^2$, b^2 , c^2 .) and subtracting the second from the first, gets $x + y + z \times y - z = a^2 - b^2$; and taking the third from the second, $x + y + z \times x - y = b^2 - c^2$; whence it follows, that $\frac{a^2 - b^2}{y - z} = \frac{b^2 - c^2}{x - y}$ ($= x + y + z$) from whence he suggests this

Construction.

In the right Line AE , take $AB = b^2 - c^2$, and $BC = a^2 - b^2$; make $BC : BE :: a + b : a$, and $BC : BE :: a - b : a$, on E describe a Semicircle whose Centre let be O , and thro' A draw AD , making the $\angle EAD = 30^\circ$ and cutting the Semicircle in D ; bisect



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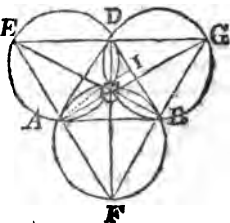
AD by the Perpendicular FG, meeting AE in G, draw DB, DE, DG, and in DB set of $Db = a$, and draw bg cutting DA in a , Db in c , and DG in g ; so shall $ag = x$, $bg = y$, and $cg = z$, the three Ages.

This Gentleman next pursues the *Demonstration*; and then the *Calculation* to a great Exactness; finding the three Ages, viz. $x = 21$, 8965522, &c. $y = 19,6524714$, and $z = 17,2723881$. Q. E. I.

Mr. John Wigglesworth, by a curious algebraic Solution, confirms the Truth of the same Numbers.

Mr. James Hartley's Solution.

Construction. Let the given Numbers 36, 34, 32, be made the three Sides of a Triangle, viz. $AB = 36$, $BD = 34$, $AD = 32$. On each of those Sides, form an equilateral Triangle; then join the opposite Angles of the interior and exterior Triangles, by the Lines AG, BE, and FD, which will intersect each other in C, then is $BC = x$, $AC = y$, and $DC = z$, the several Ages. From this

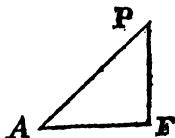


Construction, the Method of Solution is evident: for, by letting fall the Perpendicular AI on DB, I find $DI = 13$, and $BI = 21$; whence, all the Angles of the interior Δ are found, viz. $ABD = 54^\circ 18' 53''$, $BAD = 59^\circ 39' 17''$, and $ADB = 60^\circ 1' 50''$. Again, $ADB + ADE = EDB = 126^\circ 1' 50''$; whence by having the two Sides $DB = 34$, and $ED = 32$, and the Angle included; the opposite Angles may be found, viz. $BED = 27^\circ 52' 7''$, and $EBD = 26^\circ 6' 3''$. But $DAC = DEC$, and $DCA = DCB = ACB = 120^\circ$. Hence, all the Angles are known, and by Trigonometry may be found $BC = x = 21,8966$, $AC = y = 19,6525$, and $DC = z = 17,2725$, the Ages required.

V. QUESTION 62, answered by Mr. F. Holden.

LET FP be the Object, P the Point where the Ball should strike; and A the required Place of the Musquet's Discharge. Then, per Question, the Force of the Ball, at P, will be

as $\frac{1}{AP}$; but the Force, wherewith the Ball strikes the Object, will be as its absolute Force, and the $S. \angle APF$, conjunctly.



Now, $S. \angle APF = \frac{AF}{AP}$ (Rad. = Unity) whence $\frac{AF}{AP^2}$ will be as the said Force,

and therefore a Maximum; i. e. (calling AF, x , and FP, a), $\frac{x}{a^2 + x^2}$, whose Fluxion is $= \frac{a^2 x - x^2 x}{a^2 + x^2} = 0$, whence $a^2 = x^2$,

and $x = a = 40$ Yards; agreeable to the Proposer's, Mr. Little-hall's, Solution, who wrought out the same Conclusions, on which

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we remark, that as 'tis known, from other Principles, that the greatest Random of a Projectile is an Angle of Elevation of 45° , consequently a Ball, discharged at that Angle of Elevation, must evidently have the greatest Force to strike an Object at the same determined Distance.

Mr. T. Cowper solved it in the same Manner, as did Philotheoros and several others, whose Names may be seen in the Catalogue.

VI. QUESTION 63, answered by Mr. Holden.

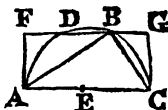
THIS Question is already solved in *Univ. Arith.* Prob. 3. and in *Ward's Young Math. Guide*, Part 3d Prob. 9, and the Theorem there, in Word is thus.

From half the Perimeter subtract twice the Quotient of the Area divided by the Perimeter, the Remainder will be the Hypotenuse.

In the present Case, the Hyp. = 50, whence the Sum of the other Sides = 70, and from the Square of this Sum subtract 8 Times the Area, the Root of the Remainder will be their Difference. Whence the other Sides are 30 and 40.

RESOLUTIO à Dom. Huntleio.

ESTO π περιμετρος = 120 = 2s, Area = 600 = a, AC = x, eritque $AB + BC = 2s - x$; jam cum $2 AB \times BC = 4a$, $x^2 + 4a = (AB + BC)^2 = 4s^2 - 4sx + x^2$; abjecto x^2 utrinque et æquatione reducta, fiet $x = s - \frac{a}{s} = 50$; porro autem ex Emersonii theoremate 12° , lib. 2^o, ut $x^2 :$



$r :: 4a : S$. $2 \angle A = 73^{\circ} 44'$, ejus dimidium est $36^{\circ} 52'$, unde $AB = 40$, et $BC = 30$, per Theorema 3um libri suprà nominati. Q. E. F.

Investigatione superiori deducitur hæcce constructio.

ASUME $AC = s - \frac{a}{s} = 50$, et fac τὸ παραλληλογράμμοι AFGE,

cujus Area aream trianguli datam duplo superet; dein diseca AC in E, et radio EA describe semicirculum ADBC, et ductis AB, CB, erit ABC triangulus quæsitus.

Mr. John Wigglesworth says, "The Areas of all plain Δ s are equal to the Rectangle of half a Triangle's Perimeter and Rad. of the inscribed Circle. And that in all right angled Δ s, the Hypotenuse is equal half the Perimeter minus the Rad. of the inscribed

"Circle." Wherefore $\frac{600}{60} = 10$ Rad. of inscribed Circle. And

$60 - 10 =$ Hypotenuse; whence as 25^2 (square half the Hypotenuse) : 600 :: 1 Rad. : $\frac{60}{25^2} = .96$ the Nat. Sine doub. lesser acute $\angle$ whence the other two Sides = 30 and 40.

Mr. William Richardson of Durham, Mr. John Fish, of Dartford Mr. Jo. Hilditch, Mr. Sam. Towndrow, who sent us the Eclipses computed, Philo-

Philomathes, Mr. T. Cowper, Mr. Phil. Williams, Mr. James Robinson, Mr. Alexander Rowe, Mr. Charles Smith, Mr. W. Dent, Mr. Henry Watson, and others to be seen in our Catalogue in the Ladies Chronologer.

VII. QUESTION 64, answered by Mr. James Robinson.

A Standard Guinea weighs 5 dwts. 9 gr. and a Shilling weighs 4 dwts. ; and a cubic Inch of standard Gold and Silver weighs 9,962625, and 5,556769 Ounces, respectively (*vide Ward's Mat. Guide, p. 121, 3d Edit.*) by which I find a Guinea is ,02697 Parts of a cubic Inch, and a Shilling ,03599 ; from whence a Shilling is found to be ,00902 Parts of a cubic Inch bigger than a Guinea. Note, a Guinea is about $\frac{3}{4}$ of the Solidity or Bigness of a Shilling.

Mr. Holden's Solution.

It is evident that the Weights of Bodies of different Kinds are as their specific Gravities and Magnitudes conjunctly, whence the Magnitudes of Bodies will be as their Weights directly, and their specific Gravities inverfly, i. e. as the Weights divided by their Gravities. Therefore, if the specific Gravity of a cubic Inch of Sterl. Gold be call'd g, and that of Sterl. Silver s, the Standard Weight of a Guinea p, and that of a Shilling q ;

then their Mag. in cubic Inches will be $\frac{p}{g}$ and $\frac{q}{s}$ respectively, and the

Difference of these two Expressions will be the Difference of their Magnitudes in cubic Inches.

Mr. Phil. Williams elegantly solved the same, as did Mr. Jo. Hilditch, and several others to be seen in the Catalogue aforesaid.

VIII. Question 65, answered by Plato.

EACH Goose has 3 Toes, 2 Webs, and 1 Heel, in one Foot, being 12 Things in Two Feet, to be marked differently.

If $n = 12$ be the Number of Things or Quantities to be differently marked, or elected by 1, 2, 3, 4, &c. then,

$$\begin{array}{l} n \\ n \times \frac{n-1}{2} \\ n \times \frac{n-1}{2} \times \frac{n-2}{3} \\ n \times \frac{n-1}{2} \times \frac{n-2}{3} \times \frac{n-3}{4} \end{array} \left. \begin{array}{l} \text{are the} \\ \text{Num-} \\ \text{ber of} \\ \text{Things} \\ \text{or} \\ \text{Geese,} \\ \text{each} \\ \text{mark'd} \\ \text{with} \end{array} \right\} \left. \begin{array}{l} 1 \text{ Mark} \\ 2 \\ 3 \\ 4 \end{array} \right\} \begin{array}{l} \text{Marks} \\ \text{differently} \\ \text{disposed.} \end{array}$$

&c. to n Terms whose Sum $= 2^n - 1 = 4095$, for the Sum of all the Combinations, in n Things, taken by 1, 2, 3, 4, &c. which are the Number of Geese. But 100 £. = 24000 Pence ; whence $\frac{24000}{4095}$

$= 5 \text{ d. } 3 \text{ f. } \frac{1815}{4095}$, the Price of a single Goose, required.

Mr. T. Cowper making 14, the Number of Toes, Webs and Heels, in the two Feet of a Goose $2^{14} - 1 = 16383$, the Number of all the Combin

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Combinations. Whence $\frac{24000}{16383} = 1d. 1f. \frac{14085}{16383}$, the Price of each Goose, required.

Mr. F. Holden making 16 the Number of Things to be differently marked, solved it according to the above *Theorem*, viz. $2^{16} - 1 = 65535$, the *Combinations*; whence 1f. $\frac{30465}{96000}$ the Price of a Goose. These were all the Solutions that we received on right Principles.

IX. QUESTION 66, answered by Mr. Hartley, the Proposer.

IN the Equation $x + y + z = x^3 + y^3 + z^3 = \frac{xy}{z}$; (correcting $\frac{xy}{z}$). x being supposed the *greatest Quantity*, it is plain, that y must be an Unit, and z less than Unity; then the Question may be stated thus,

$$\left\{ \begin{array}{l} x + z = 1 \\ x^3 + z^3 = 1 \\ \frac{x}{z} = 1 + 1 \end{array} \right\} \quad \begin{array}{l} x = ? \\ z = ? \end{array}$$

Now, x being the greater, $1 - x = z$ (less Numb.) $= \frac{x}{1+x}$

But $\frac{1x + 2x}{1+x} = 1$; whence $x = \frac{1^2 + 1}{1+2}$.

Again, $1^3 - 3x^2 + 3xz^2 = 1$, Sum of the Cubes; and (dividing by 1) $1^3 - 3x^2 + 3xz^2 = 1$. Exterminate x , by substituting its Value, and it will be $1^3 - 3x^2 + 3xz^2 = 1$; whence $x = 1, 588155$, and $z = 1, 1455445$; $y = 1$, and $x = 1, 4426105$. W. W. R.

Mr. John Wigglesworth's Solution.

IF x be greater than Unity, then z must be less; $\therefore$ let $y = 1$, then $x + 1 + z = x^3 + 1 + z^3 = \frac{x}{z}$; or $x + z = x^3 + z^3$, and $x + z = \frac{x}{z} - 1 = \frac{x - z}{z}$; put $1 + e = x$, $1 - e = z$; then $2e = x + z$, $2e = x - z$, and $x^3 + z^3 = 2e^3 + 6ae^2$; $\frac{x - z}{z} = \frac{2e}{1 - e}$; $\therefore 2e^3 + 6ae^2 = 2e$, or $a^2 + 3e^2 = 1$, and $\frac{2e}{a - e} = 2a$, from which, Last Eq. $e = \frac{a^2}{a + 1}$, which squared and substituted for e^2 , in the other Equation, we have $a^2 + \frac{3a^4}{a^2 + 2a + 1} = 1$; whence $4a^4 + 2a^3$

$+2a^3-2a=1$, where $a=7937005$; whence $=35120719$; consequently $x=1$, 14490769, $z=44249331$, required. But y may be taken something greater or less than 1, so that the Question admits of various Answers. *J. Wigglesworth.*

The same answered by Mr. F. Holden.

LET $px=y$, and $qx=z$, then, per Question, it will be $x+px+qx=x^3+p^3x^3+q^3x^3=\frac{pxx}{qx}$; or dividing all by x , $1+p+$

$q=1+p^3+q^3 \times x^3=\frac{p}{q}$. From the first and last of which,

it is evident, that p and q may be any two Numbers, whose Sum $+1$ =their Quotient, i. e. if s be put for their Sum $s+1$ must =their Quotient. Whence the Values of p and q will be $\frac{s^2+1}{s+2}$, and $\frac{s}{s+2}$ respectively, which are their general Values, whatever we put for s .

Also from the First and Second, we have $x^2=\frac{1+p+q}{1+p^3+q^3}=\frac{s+1 \times s+2}{s^3+s+2^3+s^2+s+1^3}$, whence the Values of x , y , and z , are as follows.

$$x=\sqrt{\frac{s+1 \times s+2}{s^3+s+2^3+s^2+s+1^3}}; y=\sqrt{\frac{s^2 \times s+1^3 \times s+2}{s^3+s+2^3+s^2+s+1^3}}$$

$$z=\sqrt{\frac{s^2 \times s+1 \times s+2}{s^3+s+2^3+s^2+s+1^3}}; \text{ in which Expressions any}$$

Number whatever being put for s , will give the Values of x , y , and z , answering the Conditions of the Question.

X. QUESTION 67, answered by Mr. Thomas Corwer.

THE Weight of a solid Foot of dry Oak is $\mathcal{L}$. 57,1874688 = Weight of the redundant Water; and the Weight of one solid Inch of Rain Water = ,0361169; $\therefore \frac{57,1874688}{,0361169} = 1581,1183$, the Solidity of the immerfed Segment.

Let $d=14,8884$ Inches, the Diameter of the Sphere, $s=1581,1183$, x =versed Sine of the immerfed Segment, and $r=25236$; then (by the Rule in Stereometry) $3dx^2-2x^3=\frac{s}{r}$, whence $x=$

12,217495 Inches, the Depth of the Part immerfed. Q. E. I.

Mr. James Robinson's Solution.

THERE will be just as much Water out of the Tub as is equal in Weight to the spherical Foot of Oak, and if 62,5 $\frac{1}{2}$ and 57,95 avoird. be respectively equal to the Weight of a cubic Foot of Water and Oak (See Ward's Math. Guide, p. 121) then 62,5 $\frac{1}{2}$: 1728 :: 57,95 $\frac{1}{2}$: 16 $\frac{1}{2}$ = cubic Inches of Water that run over, or the cubic Inches of

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immersed. The Diameter of the Sphere is $\frac{1728 \frac{1}{2}}{5236} = 14,888, \&c.$

which called, $5236 = a$, and $1728 - 1602,2 = 125,8 = b =$ cubic Inches of the Segment of the Sphere out of the Water, whose Height

let be $= x$; whence we have $3dxx - 2x^3 = \frac{b}{a}$, whence $x =$

$2,46$ Inches, and $14,888 - 2,46 = 12,428$ Inches of the Diameter immersed in the Water. W. W. R.

The same was elegantly solved by *Philomatbes*, Mr. *Edward Gillyat*, *Philoteoros*, Mr. *J. Wiggleworth*, Mr. *James Hartley*, Mr. *Henry Watson*, &c. whom we shall oblige in publishing their best Things, as Room and Opportunity serve,

XI. QUESTION 68, answered by Mr. T. Cowper.

AS the *Lad* was 5 Days at reading in the Quarter, before he began
D. D. D. Day
to write, it will be indirectly, as $18 : 5 :: 48 : 1,875 =$ the Time
he must continue at writing after the Expiration of the Quarter.

The Proposer's Solution.

I consider his Reading at 18 d. per Quarter alone, then his Writing must be allowed 30 d. or 2 s. 6d. per Quarter, alone also. The 4s. must become due after the 14th, and before the 19th put $b = 5$ Days, their Difference, $c = 30$, $d = 18$, and $x =$ Time above the 14th; then $b - x =$ Time short of the 19th. And it naturally follows, $d \times x = bc - cx (= b - x \times c)$ viz. the Time above the 14th, x , multiplied by 18, must be equal to the Time under the 19th, or

$b - x \times 30$; Hence $x = \frac{bc}{c+d} = 3\frac{1}{2}$ to be added to the 14th, making $17\frac{1}{2}$, when the 4s. ought to be paid.

N.B. This Question is of the Nature of those in the Rule of the Equation of Payments in Books of com. Arith. and may be solved after the same Manner, by making 18 d. due at one Month, and 30 d. due at one Month and 5 Days to find the equated Time for the Payment of both together? Now whether you put 29, 30, or 31 Days $= m$, and the latter Payment $= m + 5$ Days, your answer will, by the Rule, come out always $m + 3\frac{1}{2}$; so that $3\frac{1}{2}$ is the true Time to be added. W. W. R.

Mr. James Robinson's Solution.

IF Mr. *Arrowsmith* reckons $\frac{1}{4}$ of the Days the Year 1752 consisted of, then $88,75$ Days : 1.5sh. :: 5 Days : .0845sh. = Wages for the first 5 Days Reading; and 5.5sh. : 88,75 :: 4 — .0845sh. : 63,18 Days, or March 22d, 19m. past 4 in the Morning, when 4s. becomes due; but if 11 Days more be reckoned to the Year, 4s. will become due the 24th of March, at 9 min. past 4 in the Morning. W. W. R.

The same was answered by Mr. *Henry Watson* of Harpswell, and by others.

XII. QUESTION

XII. QUESTION 69, answered by the Proposer, Mr.
Alexander Naughtley.

LET $t, m, s = 15, 19, 28$, the given Cycles; $tms = p = 7980$
 $q = 100$; then $\frac{p}{q} \times 3 = 59,85$ the Leap Days omitted in the
Gregorian Account. And abating 2 for the first and last Years of the
Julian Period, when all the 3 Cycles begin and end together; the
Theorem is $\frac{p}{tm} + \frac{p}{ts} + \frac{p}{ms} - 2 = 60$, the Days left out in the

Julian Account which exactly answers the Conditions of the Question,
viz. $133 \times 60 = 7980$, the Years of the Julian Period: And $60 -$
 $59,85 = 0,17 = 3h. 36m.$ the Difference of the two Accounts.

If now the Vernal Equinox falls on the 9th of March in the Julian
Account, therefore $4713 + 1752 - 764 = 5701$; and as $7980 : 60$
 $:: 5701 : 42,864$; that is near about 43 Leap Days supposed to have
been left out since the Creation, which makes the Vernal Equinox to
have been on the 21st of April, at the Creation, according to this
Hypothesis.

Mr. John Holden's Solution.

The Julian Period consisting of 7980 Years $= 15 \times 19 \times 28$, it fol-
lows, that within the Compass of the Julian Period, the Cycles 15
and 19 begin together 28 Times, 15 and 28 begin together 19 Times,
and 19 and 28 begin together 15 Times, and taking one from each of
these to compensate for the last general Coincidence, which happens at
the End of the said Period, the whole Number of Leap-Days left out
of the Account, by the proposed Way of Computation in the Inter-
val of the Julian Period would be $14 + 18 + 27 = 59$, and according to
the Hypothesis of the Æquinox falling back one Day in 133 Julian
Years, it will in the whole Period have gone back just 60 Days;
but 59 Days are left out as above, in the Interval of the Julian Pe-
riod, wherefore, if only one Day were omitted for the general Coin-
cidence at the End of the Period this Method of Computation would
exactly agree with Solar Time, while the Gregorian Account, which
leaves out 60 Days in 8000 Years, would be something too slow;
yet, if in the Gregorian Account every four hundredth Year, reckon-
ing from the Beginning of the Period were made Leap Year (as is re-
ally done from the Christian Æra) and the other hundredth Years com-
mon ones, it would, during the last 80 Years of the 1st Period, be
one Day before the other Account. The same might be said of the
last 60 Years of the next Period, were these Computations carried on,
&c.

To find the Number of Days which the Æquinox would have gone back,
or advanced at any Time of the Period by the proposed Method of Compu-
tation? RULE. Divide any given Year of the Period by 4, and sub-
tract the Remainder from the Dividend; then divide what remains
after Subtraction by 133, 285, 420, and 532 separately, neglecting
Remainders, and as much as the first Quotient exceeds or falls short of
the Sum of the other three, so many Days will the mean Time of the

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Æquinox be gone back, or advanced between the Beginning of the Period, and the given Year; by means of which *Rule*, and knowing that the *Vernal Æquinox* at the Beginning of the Period, would have been about the 29th of *April*, it will be easy to determine nearly the Time of the *Æquinox* at the Creation, when the Year of Creation itself shall be ascertained.

XIII. QUESTION 70, answered by the Proposer, Mr. *Naughtley*.

On *Martinmas* Day, 1680, 9 h. 43 m. P. M.

WHEN 6 min. past one that Day, the Comet, (whose Heat exceeded above 3000 Times the Heat of a red-hot Iron) being not above the Semidiameter of the Sun Northward of the Earth's Way, seemed to threaten the *General Conflagration*.

Let $ac = XX - I = 99$, and $aa - cc = (\overline{a+e} \times \overline{a-e}) = 4X = 40$; then the two Theorems are,

$$\left\{ \begin{array}{l} \sqrt{XX + 2X + I} = X + I \\ \sqrt{XX - 2X + I} = X - I \end{array} \right\} = \left\{ \begin{array}{l} XI = 11 \\ IX = 9 \end{array} \right\} \begin{array}{l} \text{the 11th Day} \\ \text{of November.} \end{array}$$

To 1596, the triple Product of 532 add 75, the last Year of the *Great Paschal Cycle*, after *Christ's* Birth; and their Sum 1671, + 9, the Number of the Month, gives the Year 1680, when the Induction $3 + 40 = 43$, the odd Minutes, and 9 the Hours of his Birth. But as for the rest, let the Astrologers find them out.

Mr. James Robinson's Solution.

There is given the Product of the Sum and Difference of the Solar and Lunar Cycles, &c. and the Birth-day = 40, which is equal to the Difference of their Squares. To find two Square Numbers, having that Difference? *RULE*,—Resolve the given Difference into any two Factors; then the half Sum and half Difference of those Factors will be the Sides of the Squares having the Difference given. But as the Sides of the Squares will vary as you make use of different Factors, so by a Trial or two I find the Numbers to be 9 and 11, whose Product = 99, answering one Condition of the Question; if 9 be the Cycles, &c. then the Year of his Birth will be 1680, on the 11th of November at 43 Minutes past meridian. But if 11 be the Cycles, &c. then the Year of his Birth is 1682, on the 9th of January, at 45 Minutes past 11 past meridian.

XIV. QUESTION 71, answered by Mr. T. Cowper.

IT is found by Observation of *Jupiter's* Satellites, that Light passes over the Semidiameter of the Earth's Orbit = 20000 Semidiameters of the Earth, or 80000000 Miles in about 7 Minutes; whence its Velocity is 1142857 Miles per Minute. Now the mean Motion of the Sun or Earth per Minute is $2'' . 27''' . 50'''' = 8870''''$: Therefore, if we say 1 Sem. Diam. $\odot : 8870'''' :: 20000 \text{ Sem. } \odot : 177400000'''' = 821'$, or 951 measured Miles = the Motion of the Earth in its Orbit per Minute; whence the Ratio of the Motion of Light to that of the Earth in its Orbit is nearly as 1200 to 1.

Mr. J. Wigglesworth solved it likewise, and several others to be seen in the Catalogue in our Ladies Chronologer.

Mr.

Mr. James Robinson's Solution.

WHEN the Earth is between the Sun and Jupiter, the Eclipses of his Satellites happen about $7\frac{1}{2}$ Minutes sooner than they should by the Tables, and when the Earth is beyond the Sun, they happen so much too late, which shews, that Light has farther to go in the latter, than in the former Case by the Diameter of the Earth's Orbit, which at a Mean is about 162000000 Miles, by which I find that the Motion of Light is 180000 in 1' and the Motion of the Earth in its Orbit is, about 16,12 Miles in the same Time; so that the Ratio of the Motion of Light to that of the Earth in its Orbit is as 180000 to 16,12 or about 11165 to 1. And if a Cannon Ball flies one Mile in $8\frac{1}{2}$ ", then the Ratio of the Motion of the Earth to that of a Cannon Ball is as 137:1.

Mr. John Wigglesworth's Solution.

THE progressive Motion of the Earth in its Orbit is about 56000 Miles per Hour, or $15\frac{1}{2}$ Miles per Second; the Motion of Light about 180000 Miles per Second, and the Motion of a Cannon Ball at its first Discharge from the Cannon, one Mile in about $8\frac{1}{2}$ Seconds (See Martin's Philosophical Grammar, p. 59) or 117647 Miles per Second. Hence the Motion of Light to that of the Earth in its Orbit is as 11613 to 1, and the Motion of the Earth in its Orbit to that of a Cannon Ball as 132 to 1.

Mr. Samuel Townsdrove makes the Ratios as 16409 to 1, and 137 to 1.

XV. QUESTION 72, answered by Mr. John Holden, of Westhouse, Yorkshire.

SINCE B bids for 1 Foot in Length $\frac{2}{3}$ of what A bids for a solid Foot, it is plainly the Merchant's Interest to sell to B all that Part of the Fir-Tree wherein one Foot in Length contains less than $\frac{2}{3}$ of a solid Foot, and the rest to A; so that the Question to be determined is, where the Tree must be cut, that the Area of the Section may $= \frac{2}{3}$ of a superficial Foot, i. e. 96 Inches. But the Diameter of the Circle whose Area is 96 Inches $= 11.055816$, which must therefore be the Diameter of the Section, and its Distance from the less End will be found by saying, As the Difference of the Top and Bottom Diameters $= 18$ Inches: the whole Length $= 60$ Feet :: the Difference between the Top Diameter and 11.055816 $= 5.055816$: the Distance from the less End to the Place required to be found $= 16.85272$ Feet; which also $=$ the Number or Shillings B must pay $= 16s. 10d. 32264$. And the Content of the other conic Frustum is found by common Methods $= 75.386286$ Feet, which at 18d. per Foot, comes to 5l. 13s. 4d. 2f. 2126. the Money which must be paid by A.

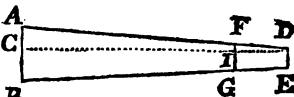
Solution by Philotheoros.

AS the Value of a Foot in Length is $= \frac{2}{3}$ of the Value of a Foot solid, it is evident that the Diameter of the dividing Section must be equal to the Diameter of a Cylinder whereof a Foot in Length will be $= \frac{2}{3}$ of a Foot solid; $\therefore$ putting the required Diameter $= x$, we have

$,7854x^2 = \frac{2}{3}$, and $x = \frac{\frac{2}{3}}{3 \times ,7854}^{\frac{1}{2}} = ,921321$ &c. and $\therefore$ B must have 16,8525 Feet in Length, cut from the lesser End for 16s. 10d. $\frac{1}{4}$ and A the Remainder, containing 75,5862 solid Feet for 5l. 13s. 4d. $\frac{1}{2}$.

Fluxionary Solution.

LET $CD = a$, $AB = b$,
 $2AC = c$, $DE = b - c$, $FG = x$,
 $2FI = x - b + c$, $m =$ Price of
a Foot solid, $n =$ Price of a Foot
in Length, and $,7854 = r$; then
by similar Δ s, $c : a :: x - b + c :$



$\frac{a}{c} \times x - b + c = DI$, and thence $CI = \frac{a}{c} \times b - x$; $\therefore$ the

Solidity of AFGCB will be expressed by $\frac{ar \times b - x}{3c} \times \frac{bx + b^2 + x^2}{3}$

$= \frac{ar}{3c} \times \frac{b^3 - x^3}{3}$, and $\therefore$ the Value of the whole Tree =

$\frac{amr}{3c} \times \frac{b^3 - x^3}{3} + \frac{an}{c} \times x - b + c$ a Maximum, and in Fluxions,

$mx - mr x^2 = 0$, whence $x = \frac{n}{mr}^{\frac{1}{2}}$, as before.

Mr. William Dent, Mr. Charles Smith, solved the same; as did Mr. Henry Watson, Mr. James Robinson, Mr. T. Cowper, Philomatbes, and several others.

XVI. QUESTION 73, answered by Mr. T. Cowper.

PUT $b = 6$ Poles, and $x^3 =$ Breadth of the Garden; then, per

Quest. $\frac{bx^3}{5} =$ the Length, and $b - x = \frac{bx^3}{5}^{\frac{1}{3}}$, that is $b^3 - 3b^2x$

$+ 3bx^2 - x^3 = \frac{bx^3}{5}$; whence $11x^3 - 15bx^2 + 15b^2x = 5b^3$, and

$x = 2,008867$, and thence the Breadth = 24,6134; Length 29,53608, and Area = 726,983351472. Again, put $a = 72,698335$

$= \frac{1}{10}$ Area; $4s = 83,68556 =$ external Ambit of the Walk, and

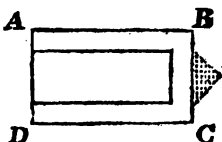
$y =$ Breadth thereof; then will $4s - 2y =$ measurable Length of the Walk; but $4sy - 2y^2 = 2a$, i. e. $y^2 - 2sy = -a$; $\therefore y = s -$

$\sqrt{s^2 - a} = 1.816254$. Lastly, $3, 2 : 4 :: 1,816254 : 2,2703175$ Poles = 12,4867462 Yards, the Height of Mount Pleasant, required.

Solved

Solved by Mr. Phil. Williams, of Pitchford.

PUT $6 =$ the Sum of Roots $= a$, and $x =$ the Root of the Length, then $a - x =$ Root of the Breadth, $\therefore x^3$ and $a^3 - 3a^2x + 3ax^2 - x^3 =$ the Length and Breadth, respectively; and per Quest. as $5 : 6 :: a^3 - 3a^2x + 3ax^2 - x^3 : x^3$; whence, by Reduction and Transposition, $11x^3 - 18ax^2 + 18a^2x = 6a^3$; solved $x = 3,0911396$; whence the Length $= 29,5362255$, and Breadth $24,6132$.—Now the Breadth of the Walk is found thus. Let $AB + BC + CD = b = 83,685$;



$\frac{1}{5}$ of Area $= 145, 39.39 = a$; and $x =$ Breadth of the Walk;

then, per Fig. $bx - 2x^2 + 2x^2 = a$, $\therefore x = \frac{a}{b} = 1,7373$; and

as $3, 2 : 4 :: 1,7373 : 2,1716$, the Height of the Mount required.

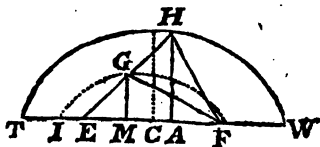
The same was solved by *Philomathes*, Mr. *Ja. Robinson*, Mr. *Jos. Hilditch*, by Mr. *Thomas Huntley* elegantly in Latin Diction, and by several others.

XVII. QUESTION 74, answered by *Belinda of Oxford*.

BY Specific Gravity, the Ratio of the Surface to the Solidity of a Lock of *Fop's* Hair, papered or unbound, weighing one Third of an Ounce, is determined to be, accurately, as the superficial Parts of his Brain to the Solidity, viz. a Ratio of Equality. The specific Gravity of a Feather to Air is the Ratio of his Judgment to his Wit.

The PRIZE-QUESTION, answered by Mr. F. Holden.

LET THW represent half the exterior, and IGF half the interior Ellipse; and from the Foci F and E, to any Point H in the exterior Ellipse draw FH, EH; make $\angle EFG = GFH$, and let fall the Perpendiculars HA, GM; call TC (= CW) t ; FC, m ; CA, x ; and AH, y ; then will FH $= t$



$= \frac{mx}{t}$ per Conics; and EH $= t + \frac{mx}{t}$; and by Prop. of a Line bisecting the $\angle$ of a Triangle EF : EF + FH :: EG : EH :: GM : HA, i. e. $2m : t - \frac{mx}{t} + 2m :: GM : y \therefore GM = \frac{2my}{t - \frac{mx}{t} + 2m}$;

Also EF : EF + FH :: EM : EA, i. e. $2m : t - \frac{mx}{t} + 2m :: EM :$

$m+x \therefore EM = \frac{2m \times \overline{m+x}}{mx + 2m}$, and the same Expressions,

only changing the Sign of x , will give the Values of EM and GM, whence A falls on the other Side C, in which Case EM will =

$$\frac{2m \times \overline{m-x}}{mx + 2m}, \text{ or (when M falls on the other Side E) } =$$

$$\frac{2m \times \overline{x-m}}{mx + 2m}; \text{ and this last, when } x=t, \text{ becomes } \frac{2m \times \overline{t-m}}{t+3m}$$

which gives the Distance of the Point I from E. Now by taking the above Values of EI, EM, GM, and multiplying EI + EM by EF - EM, and dividing the Product by $\overline{GM}^2$, the Quotient will

at last come to $\frac{t+n}{t+3m} \times \frac{t-xx}{yy}$; and seeing $\frac{t-xx}{yy}$ is

= $\frac{t}{t-m^2}$, a constant Quantity, per Proposition of exterior El-

lipsis $\therefore \frac{IM \times MF}{\overline{GM}^2}$ is also a constant Quantity; whence the interior

Ellipsis is also one of the common Kind, as the Focus of both are in the same Point E. And, by adding together EF and EI, we have

$$\frac{4m \times \overline{t+n}}{t+3m} = \text{Transverse of the interior Ellipsis; and } IM \times MF :$$

$$\overline{GM}^2 :: \square \text{ Transf.} : \square \text{ Conj.} \therefore \square \text{ Conj.} = \overline{IF}^2 \times \frac{\overline{GM}^2}{IM \times MF}$$

$$= \frac{16m^2 \times \overline{t-m}}{t+3m}, \text{ which multiplied into } \square \text{ Transverse gives}$$

$$\frac{36m^2 \times \overline{t+m} \times \overline{t-m}}{(t+3m)^2} = \square \text{ of circumscribing } \square m, \text{ which } \div d, \text{ by}$$

$$2m \times \overline{t-m} = \square \text{ of circum. Parallel. of the exterior Ellipsis gives}$$

$$\frac{16m^2 \times \overline{t+m}}{(t+3m)^2}, \text{ whose Root } \frac{4m^2 \times \overline{t+m}}{t \times (t+3m)^{\frac{1}{2}}}$$

expresses the Quotient of the two Parallels, and consequently of the Areas of the two Ellipses, when the Interior is divided by the Exterior, and must therefore, per Question, be a Maximum. But from the Nature of the Expression

it appears, that while m increases, the Value of the whole Fraction will encrease, and will $\therefore$ be greatest when m is the greatest possible i. e. infinitely near $=t$, whence t must be indefinitely great, and the Transverse of the interior Ellipsis nearly = thereto; and because then

$$m=t,$$

$m = t$, the Quotient will become $= \frac{1}{\sqrt{2}}$ $\therefore$ the Area of the ex-

terior will be to the Area of the interior Ellipsis, as 1 to $\frac{1}{\sqrt{2}}$

and their Conjugate Diameters and Areas are in the same Proportion.

Hence the VICTOR, F. HOLDEN, claims the Prize. — *Settle*, near *West-House, Yorkshire, Feb. 15. 1753.*

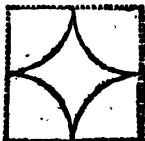
Chesterfieldensis has, since this Gentleman's Solution, proved the same Truth, by a different, though elegant, *Process*, which we have not Room to insert. He has proved by his elaborate Operations, that when the Conjugate of the outer Ellipsis $= 1$, the Area of the circumscribing $\square$ of the inner Ellipsis $= 28043,116$; and when the said Conjugate $= 0$, or an indefinite small Quantity, the Area of circumscribing $\square = 28043,12$; the Difference being only ,004.

N. B. When the outer Ellipsis becomes a Circle, the inner Ellipsis vanishes, or is a *Minimum*; conseq. when the *Trans.* and *Conj.* of the outer are most different, or Transverse indefinite, the inner Ellipsis is a *Maximum* by Nature of both.

ANSWERS to the PARADOXES in last Year's PALLADIUM.

I. PARADOX answered by Mr. T. Cowper.

THE Sides of the Field are the four *quadrantal* Arches of a Circle (as in the annexed Figure) therefore, if we take ,2146, the *Excess* of the Area of the Square above that of a Circle, whose Side and Diameter are each Unity, and say ,2146 : 1 :: 320 Perches : 149,1463 Perches, the Square Root whereof $= 38,615 =$ Diameter of a Circle whose Periphery is 121,312884 $=$ the Perimeter of the Field, required.



II. PARADOX answered by the Parish-Clerk of Milton in Kent.

THERE is but one Family in the Parish of *Milton*, near *GraveSEND*, in *Kent*; consequently the *Occupier* of the fruitful Soil of that Parish, cannot offend Religion or Modesty in kissing his own Wife only.

EMENDATIONS of the Lady's Philosopher, No. III.

P. 32, l. 3, for $x=0$, read, when $x=0$; for the Fluent $cx+yc=ay$,

is found, &c. P. 45, l. 5, for $\frac{1}{k} =$, read $\frac{1}{k} -$; l. 6, for 2.46

$\frac{1}{2} k^3$ read 2.46 $\frac{1}{2} k^3$; l. 7, the same: l. 11, read, may be found, if

you reduce it. P. 46 l. 9 for $v^{\frac{1}{2}}v$, read, $v^{\frac{1}{2}}$; l. 13, for Area, read

Arch. P. 48 l. 19, for $x=y-1$, r. $y=a$

E

Remark

Remark.

WHAT a blundering Solution is given in Page 122, No. 4, *Math. Exercises*, where there is far more Labour to adapt a particular to a general Case, than with all R. H.'s Solution: This is the first Time I have ever seen a general Solution deduced from a Particular; though I have heard of deducing a particular Problem from a general One.

IT was expected that R. R. H. in *Lady's Philosopher* No. III. would have been more severe in his Answer to *Turner*; for who is obliged to take such Abuse from a low life Animal, who is not capable of hurting any Body but with his Tongue. If he puts in a cavilling Reply to No. III. *Ladies Philosopher*, it will contain Nothing.

GEORGE BROWN, of Oxford.

EMENDATIONS of the Palladium, 1753.

P. 21, Read, *The Sides of a Triangle*, (whose bisecting Lines drawn from the $\angle$ s opposite are nearly alike) may be taken reciprocally as the bisecting Lines, for a near Solution, in the present Case. Because when the bisecting Lines, and consequently Sides of a Triangle are exactly alike, the Sides are reciprocally as the bisecting Lines, being then the same as the Perpendiculars, which are always reciprocally proportional to the Sides on which they fall, from the opposite Angles, in all right lined Triangles whatsoever. And referring to Mr. *Cowper's* Letter we find he sent us 19,71; 18,48; 17,39; the Sides in a near Solution; which we altered to 19,60; 18,52; and 17,20, the correct Numbers; without explaining Mr. *Cowper's* Meaning and Words before, in the proper Place.

Mr. *John Chester*, of *Woolwich*, recommends the Writing of an INTRODUCTION to the *Mathematics*, with the Doctrine of Plain and Spherical Triangles, according to Mr. *Emerson's* general Method, with Examples. The Conic Section, according to Mr. *Steele* to be introduced, and whatever else shall serve for an Improvement on *Ward's Young Mathematician's Guide*, by which so many have been made Mathematicians.

He wishes to see a Method for resolving all the Cases of Water running out of a Pond or Vessel, according to a Perpendicular, or lateral Pressure, at any given Depth of Water, through a Hole, either square, oblong, elliptical or circular. Mr. *Muller*, he says, in his *Mathematics*, 2d. Vol. takes Notice that very Few have wrote tolerable upon this Subject.

Of the Abuse and Use of HISTORY.

SOME study History for Amusement, rather than Improvement, and read the Life of *Aristides* or *Phocion*, of *Epaminondas* or *Scipio*, *Alexander* or *Cæsar*, as they would a Story of *Knight Errantry*. Others study History to impose in Conversation, and distinguish themselves in Company. The Historians, a Degree above these, for Utility to others, are the Makers of Dictionaries, without growing wiser or
Better

better themselves by their Works. The *fourth Class*, of less Use than these, but of greater Eminence, are Men of the first Rank in Learning, to whom the whole Tribe of Scholars reverentially bow. In the immense Labours of *Scaliger*, *Boschart*, *Petavius*, *Usher*, or *Marsham*, the same Materials run thro' all their Systems of Chronology, and historical Relations. But, in these, the *essential* Materials are but *Few*, which they have combined and diversified into vast Extent, by supposing Facts, or guessing at Truth, and uniting disjointed Passages in various Authors; with the Addition of *doubtful* Traditions of original Uncertainties, among different People, in remote *Centuries*. A Similitude of Sounds sometimes serve to prop a *System*. Of the *few* Materials they have, the learned Persons themselves acknowledge the *very best*, of such as pass for authentic, to be extremely *precarious*.

Julius Africanus, *Eusebius*, and *George the Monk*, laid open the principal Sources of, and corrupted this Science. They endeavoured to make profane History and Chronology agree with the Sacred; tho' the Chronology of the latter is not established sufficient for a *Rule*. The antient Monuments were digested into a System to be maintained; tho' none of them were transmitted in their original Form and Purity.

The *Dynasties* of *Manetho* are broken to Pieces by *Eusebius*, and such Fragments of them as suited his Purpose are introduced to his Work. The *Codex Alexandrinus* we have from *George the Monk*; without other Authority. And Sir *John Marsham* undervalues his Authority in one Page, and yet builds his *System* upon it in the next. The Foundation of these *Systems* are not so much regarded as the Skill in forming them, or reducing the *immense* Antiquity of the *Egyptians* within the Limits of the *Hebraic* Calculation. These Systems are so many *incanted Castles*; but are nothing but Appearances. Dissolve the Charm, and they vanish; to do which we must begin at their Beginning, and examine the Foundations on which they stand. These are but faintly probable, or grossly improbable, and therefore the Superstructure can be no better. This Science is of the Kind that are a *Limine salutandæ*. To do less than examine the Foundation of the Superstructure, grave Authority may impose on our Ignorance: To do more than what is necessary would assist that Authority to impose false Science upon us.

To shew our Fondness for History, (inseparable from human Nature as Self-Love,) the Triumphs of *Odin* were celebrated in *runic* Songs, and the Exploits of our *British* Ancestors are recorded in the Songs of their Poets. The savage Inhabitants of *America* use the same Custom at this Day; and the long historical Ballads of their Huntings and Wars are sung at their *Festivals*. The Passion for History shews itself from our Infancy to the Grave. The Child fondly listens to the Tales of its Nurse, and learns to read by fabulous Legends, and Novels; proceeding to Romance, and then to History, in riper Years; and, in Age, the Desire of knowing what has happened to others, yields to the Desire of relating what has happened to ourselves. History, true or false, generally speaks to our Passions; but seldom to our Understandings.

Nature has opened the Study of History to all who can read and reflect on what they read, and what he has made so desirable, Reason may make the best Use of to improve our Minds.

The Wise read not to sooth their Indolence, nor please their Vanity, nor drudge, like *Grammarians* and *Critics*, for others to study after them with greater Ease; nor affect the slender Merit of being great Scholars, by searching for Secrets in the dark Mazes of Antiquity. Nature never intended our Curiosity solely for its Gratification. The true Use of our Enquiries is Improvement of private and public *Virtue*. Applications neither tending directly, or obliquely, to make us wiser and better, are but an useless Sort of *Trifling*. And History, of all other Application, seems to be the best for training us up to private and public *Virtue*. History teaches by Example of the greatest Force. The wisest Lessons of *Virtue* go but a little Way to convince the Judgment, and determine the Will, till they are enforced by Example, of what, in the like Cases, has happened to others, on a Neglect of the same Precepts. Instruction, by Precept only, requires a long Deduction of Reasoning, grounded on Authority, to convince us. Examples immediately appeal to our Senses for carrying Conviction. We yield to *Fact* when we resist *Speculation*. Examples too, appeal to our *Passions*, asswaging or animating them on the Side of Judgment, forming Habits by Repetition, and securing the whole Man of a Piece in Observance of Precepts, first moved by Example. The most effectual Way of commanding or governing, is by Example, whereby Tyranny itself becomes persuasive. A virtuous Example is worthy the Imitation of all Princes. The Force of Example is not immediately confined to Sight, but shews itself in a *Habit* of recalling to the Memory (by the Means of History) Examples, worthy of Imitation. Many of the Contemporaries with *Socrates* profited more by his Example than Discourse. *Seneca* observes, that *Metrodorus*, *Hermachus* and *Polyænus*, great Men, were formed by living under the same Roof with *Epicurus*, and not by frequenting his School; which are singular Instances of the Force of Example beyond Precept.

The Citizens of *Rome* placed the Images of their *Ancestors* in the *Vestibules* of their Houses, so that going in or out, these venerable *Bustoes*, meeting their Eyes, recalled to them the glorious Actions of the *Dead*, to excite the *Living* to emulate the great Examples of their Forefathers; and the Success answered the *Design*. The Virtues of of one Generation became thereby transfused into many succeeding; and the noble Spirit of *Heroism* and *Patriotism* was maintained through many Ages of that glorious Commonwealth. These are Instances of the Force of remote Example, from whence we may conclude that Examples of more modern Date are necessary.

The great School of Example is the World, and the Masters of this School are History and Experience. The former is necessary to prepare us for, and to accompany us under, the Discipline of the latter.

The Study of History is insufficient without Experience, and Experience itself is so without Genius. Genius is preferable to the other two, but are best all three together; for however great a Genius may be, and how much soever he may acquire new Light and Heat in his rapid Course of Enquiry, he will never shine with full Lustre, nor shed the full Influence he is capable of, unless, to his own Experience, the Experience of other Men and other Ages, are added. Geniuses without the Improvement of Experience, is, what Comets were imagined to be, vizing Meteors, irregular in their Course, and dangerous of Approach;

of no Use to any *System*, and capable of destroying any. Mere Sons of Earth! If they have Experience without Knowledge of the History of the World; and but half Scholars in the Science of Mankind. If they are conversant in History without Experience, they are *worse* than ignorant; mere *Pedants*; always incapable, and oftentimes meddling and presuming. The Man of *Genius, History and Experience*, joined to *Integrity*, is an Honour to his Country, and a public Blessing!

LELIUS.

The ORIGIN of the FAMILY of PRIDE.

THIS LADY, whom I recognize, is descended from an *immortal Hero*, whose memorable Exploits have been transmitted to us by the most celebrated *Poets and Historians* of the first Ages. For after a diligent Search, among the Rubbish of Antiquity, I find her to be the Daughter of *Lucifer*, who, with her Father, and the rest of the rebellious Angels were tumbled down from Heaven, in her Minority, before this World was created. The Arch-Traitor, *Lucifer*, no sooner recovered of his Surprise than he began to contemplate his former State of Glory, and to reflect upon the dismal Consequence of his late Defeat: Whereupon, he meditated *Revenge*, (after calling a Council, at which his Daughter *Pride* attended) he took with him his Daughter, and went in Search of the New World, took a View of our first Parents in Paradise, and envying their happy State, determined, within Himself, to bring them over to his Party. The Lady having received Instructions from her Father how to behave, was by him conducted to the Garden of *Eden*, that Seat of Bliss and native Innocence. Here she began to practice her Inchantments and wicked Machinations upon our Mother *Eve*, as she lay asleep, by whispering in her Ear, the Advantages which would accrue from *disobeying the Command of her Creator*, at the same time inspiring her with the Thought of *Vanity and Ambition*. PRIDE having thus far executed her Commission to the Satisfaction of her Father, they both descended to *Pandemonium**, amidst the Acclamations of a diabolical Multitude!

Eve, having strongly imbibed the pernicious Principle, her Soul was intoxicated with the pleasing Poison, and she communicated the Infection to her *Successors*, who gradually distributed it to the whole Race of Mankind; nor have the Effect of her Delusion been less extensive; for the Family of Pride increases every Day, and like a young *Female Plant*, newly taken out of the Nursery, soon throws out its luxuriant Branches, drops Seed upon the Earth, and furnishes a second Progeny from Generation to Generation. To enumerate all the Branches of this Family of PRIDE would be an *Herculean Labour*. PRIDE often makes her Appearance in *Courts and Cottages*; amidst *Opulence and Poverty*; with the *Peer and the Peasant*; the *Merchant and Mechanic*; nor have the *Statesman, Physician, Lawyer, Divine*, with Men and Women of all Professions and Denominations, been unactive to encrease this Family. Those richly attired (overvaluing themselves) are odious and contemptible! but those clothed in Rags, are shocking and abominable! Persons the nearest allied to PRIDE's *puissant Ancestors*

* *Lucifer's Palace.*

are those who assume to themselves any Qualities to which they are inferior, and not justly intitled; who, possessed of Power, expects Homage, merely for that Possession. Or, blessed with some peculiar Gifts of Nature, for no other Reason, arrogantly set themselves up above their Fellow Beings, and evince themselves to be the Spawn of the *Rebellious Brood* aforementioned; the Sons and Daughters of *Lucifer*; and must expect to share the same Fate.

It is not *Name*, however awful, nor an *Office*, however important, that ought, or can bring Reverence to the Man who possesses them unworthily. *Folly* and *Vanity* should have no *Asylum*; *Titles* cannot sanctify Crimes; though they sometimes protect Criminals. I have all possible Esteem for Quality, and Men of Station and Dignity! But if a Man of Quality acts like an *Ape*, a *Gamester* or a *Profligate*; if he is vain of his *Lineage*, without good Qualities, and looks down on all below him in Station, with Contempt! his Lordship must expect none of my Reverence, notwithstanding his honourable Situation.

Omne animi vitium tanto conspectius in se

Crimen habet; quanto major qui peccat habetur.

JUVEN.

If Men should be worshiped for their Power only, the *Devil*, who has much more Power than Men, as we are told, may as justly command our Adoration.

Many of the ancient *Greek Philosophers* took great *Pride* in the Length and Gravity of their Beards. But suppose an *Old He Goat*, who has as much Beard and Gravity as any of them, had been placed in one of their *Chairs*, it is doubtless he would have provoked the *Sage*, and diverted the *Assembly*. Pomp and Beard therefore became ridiculous. Yet Nothing that constitutes a *real Philosopher*, neither Virtue, useful Learning, nor any Thing that is good and praise-worthy, can be justly ridiculed. To descend from the *Great* to the *middle* Rank of People, and from the *Ancients* to the *Moderns*, *Pride* appears in the Shape of the *Country Squire*, the *Cit*, the *Pedant*, and the *Literati*, of the present Age.

A young Gentleman lately arrived in Town from one of the Universities, and proud of being reputed an *Author*, from an Opinion that all that was to be learned must be there acquired, he accordingly launched out in the *Pamphleteer-Frigate*, without a *Pilot*, and being entirely unacquainted with the Art of Navigation, either in *Theory* or *Practice*, was, in his first Voyage, cast away among the Rocks of *Pedants*, *Formalists* and *Coxcombs*.

Soon after him a *Second* embarked on Board another Vessel, with a sufficient Convoy, bound to the Island of *Common-Sense*; but knowing little of the Nature of that Trade, and less of the Constitution of that Government, was, on his Arrival there, imprisoned for a *Smugler*; who, after having his *Cargo* searched, was condemned to be debarred from *Pen*, *Ink*, and *Paper* during Life, and to restore to the *right Owners* all he had pirated from them. Being pretty much chagrined at this hard Sentence, and swollen with *Pride*, at the same Time, he burst in *Pieces*! In his Body, thus divided, were found many precious *Medals*, fraudulently taken from the *Ancients* and *Moderns*, somewhat defaced, though the Inscriptions were legible.

Notwithstanding the ill Success of these *Two Pretenders*, there immediately appeared a numerous Company of Candidates, offering their Lives and Fortunes towards the Support of *Literature*; each asserting his

his peculiar Right to *Wisdom and Rhetoric*; and demanding the Command of the next *Fleet* which should be sent to the *Island of Utopia*. Hereupon *Pallas* summoned a Council, and ordered the respective Candidates to attend, that she might be the better Judge of their Abilities, and thereby give Merit its proper Place.

It is not my Business to mention Names, or to pourtray an *Ass* from a *Goose*, or *Peacock* for a *Swan*; *PRIDE* herself in *Man's* Apparel assumed the Preference, and being mounted upon an *Ensign* thus harangued the sublime Audience.

"MY LORDS,

"*IMMORTALITY* is your Birthright, to which glorious Situation, I have a Claim, superior to all Mankind; *Immortality* and *Assurance*, [or according to the *Horatian* Phrase, a vicious Modesty] will not suffer me to approach to that Dignity without: *INSPECTING* the respective Merits of my *Antagonists*. Let them confront me either separately or together. Has any one among them the Voice of *Stentor*? Call him forth. Is there an *Adept* in any Science, though I know Nothing of the Matter, he shall, from me, receive Conviction, and be struck dumb in a Moment. I am well acquainted with Words, understand the Nature of Eloquence, have *Quintilian* by Heart, and am a good *Proficient* in all the modern Languages.

"Hence, I can gather such *Flowers* as they never had the Honour to smell to, and make a *Nosegay* of Words, picked out of *French*, *Italian* and *Spanish* Garlands, which will send out such *Effluvia*, as intoxicate half the learned World, and lull them to Rest in a Moment.

"I have often observed, that a *Foolish Speech*, supported with *PRIDE* and *Veboemence*, will conquer the best Sense, and the best Cause that ever came before a *Court of Judicature*. For this very Reason, MY LORDS, I am resolved to persist in my own *Self-Concept*, and to say of all the Authors I have imperiously called to *Review*, that I, even I, am *secundus Nulli*."

THE ASSEMBLY of GODS continued a while silent, at this *audacious* Speech; at length *PALLAS*, herself, addressed him as follows.

"Sir, I dispute not your Title, as you are acknowledged to be the Son of *Esculapius*, and the Grandson of my Brother *Apollo*; but, in Point of Justice, I must hear what another Candidate has to offer, who is ordered to appear. Here he is,—hear him.—

MY LORDS, I must own, I am always very cautious of reasoning with such *Mortals*! Their *first* Argument is generally Assertion, the second an Affront. From a conceited Education, and boasted Conversation arise their Impatience for Contradiction, and their Readiness to contradict.

There is no Passion, which screens itself under more Disguises, or more imperceptibly insinuates itself into the Hearts of Men than *PRIDE*, which has made me often reflect, with Pleasure, on that Sentence in *Holy Writ*, which informs us, that *Pride was not made for Man*. For indeed there is not one single View in human Nature, under its present Condition, which is not sufficient to annihilate all the Seeds of it. There is nothing in the Will or Understanding that can tempt any considerable Creature to Vanity. Were he not a sinful

Creatu

Creature he would not be subject to lawless Passion, which arises from the Depravity of his Nature.

Were he not an ignorant and miserable Creature, he could not have those wretched Objects of Comparison before his Eyes, which make one Man value himself above another. A wise Man will be contented, that his Glory be deferred till he shall be truly glorified, and his Happiness is assured.

If there be any Thing which makes human Nature ridiculous to Beings of superior Faculties, it is PRIDE. They know so well the Vanity of these imaginary Passions, which swell the Heart of Man; whether in Birth, Fortune, or Title, which one Mortal enjoys above another, that it must either very much astonish, or very much divert them to see a Man puffed up above his Neighbour, on these Accounts; when, at the same time, he is obnoxious to all the Calamities of his Species.

UPONORENSIS.

Of DRUNKENNESS.

AMONG the many fashionable Vices predominant in this Kingdom, I know not one, which is attended with more dreadful Consequences than that of *Drunkenness*, which transports Men beyond the Bounds of Moderation, even to unwarrantable Practices. All the stated *Maxims*, in Relation to the Nature of Mankind, which have been long ago settled and established by Philosophers, and observing Men, are, by this pernicious Practice baffled and exploded, and we have nothing left for Contemplation, but what the wild Extravagancies of an over heated Brain suggests to us, and which are sure to raise all our sensual Appetites to a Pitch of Madness, and by a creditable *Metamorphosis* transform us into Brutes.

Fatal Experience has enough convinced me that this vicious Practice is the most certain Method to corrupt Men's Minds, and debauch their honest Principles, to create Discontents, Disorders, Violences and Revolutions amongst Men, and to actuate the *many beaded Multitude*: For if a modern *Patriot* makes them drunk once or twice a Year, this Injury is a Kindness which they shall never forget; and he is sure of their Hearts and their Hands for having so generously robbed them of their *Time*, their *Innocence* and their *Senses*. They are grateful for the Mischief done them, and in Return are ready to do any for him: when he who restrains them from *Drunkenness*, or even punishes them for it, is a far greater a he is a real *Benefactor*; but such a Benefactor as they will never forgive, and he is sure to loose their good Will probably to purchase their Hatred.

This shews how much their Senses are stronger than their Understanding; that they are governed, not by Judgment, but sensual Appetite; and, that one Guinea in *Drink*, will oblige them more than Two in Cloths, or in any other *dry* Manner. Liquor warms their Hearts and fills them with the Person who bestows it, who is the Author of so much Joy and Delight, as they feel! so that in raising *Parties* and *Factions*, inflaming the Mind goes a thousand Times farther than reasoning and teaching; and while they are under the Dominion of *Bacchus* they become most prone to Tumults and Insurrections.

This

This may be sufficient to shew the great Dangers which arise from this *Vice*, with Regard to the public Tranquility: the fatal Effects produced by *Drunkenness* in private Families being by far the more common are by far the more numerous.

Can there be a more shocking Sight than to behold an industrious Tradesman ruined by his Wife's Intemperance? Or, on the contrary, to observe a hopeful Family reduced to Want and Misery by the Debauchery of the Husband? These are Objects which frequently move the Indignation, but very seldom excite the Compassion of good *Christians*, especially while the young *Brood* remain under the Tuition of their iniquitous Parents; and it is Ten to One are insensibly led into the same evil Practice by their Example.

But when this *horrible Crime* is introduced among the lower Class of People, and is by them practised with Impunity, what Words can describe it? No Language can paint out its Wickedness, nor can the Picture of it be drawn so fully as to shew the World half its Blackness and Deformity. They anticipate *Damnation*, and make their Dwellings a local *Hell*! They feed upon liquid Fire! and all their Cloths are burnt off their Backs by its *Effluvia*. Oaths, Curses, Sighs and Groans, are their continual Entertainment; Hunger and Poverty their perpetual Companions. Who can observe such a *hellish Scene* as this without being ashamed of their own *Species*? Who would not wish himself to be a *Monkey*, rather than a *Man* and guilty of such Male Practices? The meanest *Reptile*, rather than a *Woman* possessed of these Transgressions? Of which, with Shame be it spoken, there are none so flagrant, catching, and mischievous. What is still worse, it is incapable of Cure; because it will not accept a Remedy; therefore spreads its baneful Influence wider and wider every Day, so that it is to be feared the Increase will at length become *epidemic* and *universal*.

UPNORENSIS.

To the AUTHOR of the PALLADIUM and LADIES
CHRONOLOGER,

*Sunt geminae somni Portæ, quarum altera fertur
Cornea, quæ veris facilis datur exitus Umbris:
Altera candenti perfecta nitens Elephanto,
Sed falsa ad Cælum mittant Insomnia Manes.*

VIRG. Ænead. VI.

INTRODUCTION.

SIR,

NOT doubting but you have read of the *Sortes Virgilianæ*; I have purposely made choice of this Motto from that celebrated *Latin Poet*, whose Works have been held in the greatest Esteem for above the 17 Centuries, and are likely to maintain their Dignity till the general Dissolution. Our Author seems to imagine, that there are two Sorts of Dreams, the one true, the other fabulous: The former proceeding from a Gate made of *Horn*, the latter from one of *Ivory*. Nor wa-

singular in this Opinion, for the same Thing has been mentioned by *Homer, Herodotus, Lucian, Ansonius, Plato*, and many more of the ancient Writers, Philosophers, Poets, and Historians.

From which of the two Gates or Passages, my Dream issued, I shall not determine, But in an Age where Reason is kept hoodwink'd, where the want of the Light of true Knowledge produces many Superstitious Practices; where Astrologers are believed and consulted, and their judicial Predictions are made an *Article* of Religion, which their *Highb Priests* are obliged to sanctify, I surely may presume, that a *visionary Scene*, of the dreaming Kind, will not prove unacceptable; more especially when it carries its particular Use with it; and may prove altogether as instructive to the Readers, as do the boasted Harangues of a *S—t*, a *H—ly*, a *W—d*, or a *W—y*, to their Auditors.

Last Night I had a Dream of so extraordinary a Nature, and which made so strong an Impression upon my Mind as cannot be erased; neither can I forget or forbear communicating it to you. for the good of the Public.

A D R E A M.

Methought I was walking in a spacious Street, near a magnificent Palace, when a Foreigner, in the Habit of a *Chinese Mandarin* met me, accompanied by his Interpreter, who accosted me in the *Portuguese* Language after the following Manner.

“ S I R,

“ We are entirely unacquainted with the *Customs* of your Country, being, after a long and tedious Voyage, but just arrived in *England*, partly for Pleasure, partly for Instruction and Information, not long ago we came out of a House, where we observed a Number of Tables in a Room, round some of which were placed several Parties of Men and Women, who seem'd wonderfully delighted with poring upon a certain oblong Square Piece of painted Paper, which they held in their Hands: In a different Part of the Room we took Notice of another Company, who were, altogether, as intentive on shaking an *Oval Box*, and throwing therein two cubical Bodies of Ivory, with various black Spots indented. Being perfectly ignorant for what Use these different Appearances were design'd; we really imagined they were performing some *magical Ceremony*; That the Figures we saw delineated in the Bits of Paper, were a mystical Charm; and that the *Cubes* of the Ivory were portentous of *Good and Evil*. What confirm'd us in this Opinion was the Grimaces and Distortions, which appeared in several of their Countenances, with their awkward and uncommon Gestures. As you seem to understand the *Portuguese* Language, be so good, *SIR*, as to return with us to the Place above-mentioned, and tell me what they are doing, that I may inform my *MASTER* of their Intentions. I had almost forgot, *continued he*, to tell you that at one of the Tables we saw a great many Pieces of Gold and Silver pass and repass, and at the other all was hush, all Silence, and nothing seen but painted Paper, and Pieces of Ivory”.

I readily

I readily guess'd where they had been, tho' in a *Dream*, and to shew my Respect to *Strangers*, I returned with them, and after walking round the Room, and viewing the Company, we retired to a Tavern, at Hand, where I explained the whole Affair. For though in a *Dream*, I still remember every Word that passed during the whole Conversation. Those who sit down at the Tables, said I, are at Play, and those who stand round them are *Betters*, or *Winners* or *Losers*, by the Play, who observing the different Skill of the Gamesters, lay their Money on that Side where they think they see the greatest Judgment and Dexterity. Here a *Nobleman* shall be cheated out of his Estate by a *Sbarper*, and a substantial Merchant or Tradesman, from a Principle of *Avarice*, shall ruin himself and Family, by engaging with a *Beggar*. Nor are these the worst of Evils, which attend this *Fever* of the Mind: The Distemper is grown epidemical, and become the favourite Foible of both Sexes. You cannot rest an Hour, after Dinner, even where you are invited, or come as a casual *Guest*, without being deemed guilty of ill Manners, if you refuse to make one of the Party at these Diversions; whether you like or dislike, are ignorant, or have Understanding enough to know what you are about; insomuch that you often pay double the Price of your Entertainment. Here, methought, the *Mandarin* lift up his Eyes and Hands, and cried out in a loud Voice, *Fy sbet yalp Torth yam odg Dens em Ales Gena Oetb Leas.* i. e. *If these be your northern Diversions, may I remain in Ignorance, and by the Blessing of the UNKNOWN GOD, return safe again to the East.*

Hereupon I awaked, and repeated the following Couplet.

*Fortune, a Goddess, is to Fools alone,
The Wise are always Masters of their own.*

Yours, &c.

A RATIONALIST.

The MUSES BANQUET.

On WIT.

To Mrs. Elizabeth B---b---n, Relict of the late Mr. Henry
B---b---n, F. R. S.

True WIT is like the brilliant Stone,
Dug from the *Indian Mine*;
Which boasts two various Pow'rs, in One,
To cut, as well as *shine*!
Genius, like that, if polish'd right,
With the same Gift abounds,
Appears, at once, both keen and bright,
And sparkles, while it wounds!

To the Lady *T—nk—lle*, on her reading *Sherlock*, on
Death. By the *E—* of *Cb—d*.

1. MISTAKEN Fair! lay *Sherlock* by,
His Doctrine is deceiving;
For while he teaches us to die,
He cheats us of our Living.
2. To die's a Lesson we shall know,
Too soon, without a Master;
Then let us only study now,
How we may live the faster.
3. To live's to love; to bless, be bless'd
With mutual Inclination;
Share then my Ardour in your Breast,
And kindly meet my *Passion*.
4. But, if thus bless'd I may not live,
And *Pity* you deny;
To me, at least, your *Sherlock* give,
'Tis, I must learn to die.

The DIMPLE, to Lucinda.

LUCINDA young, the fair and gay,
A verdant Bow'r inclos'd,
The *Little Wanton* tir'd with Play,
In downy Sleep repos'd;
A Bloom so like the Peach's Hue,
Her glowing Cheeks express'd,
A Bird, eluded, eager flew,
And seiz'd the *luscious Feast*.
Ah! lucky Spoil, though rude th' Alarm,
Lucinda weeping rose,
Since, to the Wound, its smiling Form
That killing *Dimple* owes.

*Upon a Window, in a Room of the Tower of London, is
written, R. Walpole, 1712; underneath which are the
following Lines.*

GOOD unexpected, Evil unforeseen,
Appear by Turns, as Fortune shifts the Scene,
Some, rais'd aloft, come tumbling down again,
And fall so hard, they bound and rise again.

On a Sermon against National DEPRAVITY.

WHILE his *Lordship*, with Ardour becoming his Station,
Inveighs at the Folly and Vice of the Nation;
But the Sins of the *Clergy* forbears to discover,
And those of the *Rich* complaisant passes over,
One would swear that the former were canoniz'd Saints,
And the latter lay under no Sort of Restraints.

On a Gentleman of Great Parts, but a Great Rake.

As *Fricus* bawdy sung and spoke,
Says *Biblio*, prithee hush !
Where is the *Humour*, where's the *Joke*,
To shew you cannot *blush* ?

Emperor ADRIAN's Verses to his Soul, imitated

POOR, little, pretty, flutt'ring, Thing !
Must we no longer live together ?
And dost thou prune thy trembling Wing,
To take thy Flight, thou know'st not whither ?
Thy humerous Vein, thy pleasing Folly,
Lie all neglected, all forgot ;
And pensive, wav'ring Melancholy,
Thou dread'st, and hop'st Thou know'st not what ?

An Epigram by a Sea-Officer.

NOT far from *Old Medway*, new Story makes known,
There lived a gay Damsel the Taste of the Town ;
Whom a bold Son of *Neptune* chas'd hard, while in Sight,
In Hopes to come up with the Prize before Night.
To whom the GREAT SIR, " What my Boy are you doing ?
" She carries most Men ! You are seeking your Ruin !
" Remember, young Lover, you must pay the PIPER,
" Though she trips like a Fairy, she stings like a V-I-P-E-R."

PRINCESS PERIWINKLE, attended by several Maids of great Honour.

Sure such a Wretch as I was never born,
By all the World deserted and forlorn ;
This *Bitter-sweet*, this *Honey-Gall* to prove,
And all the Sugar and Vinegar of Love,
Pride, *Love* and *Reason* will not let me rest,
But make a devilish Bustle in my Breast.
To wed with *Fisgig*, *Pride*, *Pride*, *Pride* denies
Put on a *Spanish-Padlock* Reason cries,
But tender *Gentle Love* with every Wish complies.
Pride, *Love*, and *Reason*, fight till ye are cloy'd,
And each by each in mutual Wounds destroy'd.
Thus—when a *Barber* and a *Collier* fight,
The Barber beats the luckless Collier white ;
The dusty *Collier* heaves his ponderous Sack,
And, big with Vengeance, beats the Barber black.
In comes the *Brick-Dust-Man*, with Grime o'erspread,
And beats the Barber and the Collier red.
Black, Red and White in various Clouds are tost,
And in the Dust they raise, the Combatants are lost !

NETCRACKER.

Of STORY-TELLING.

AS *Story-Telling* greatly enlivens Conversation, those, who have a Disposition for this *Art*, should choose such Circumstances, and tell such Stories as naturally arise out of the *Subject-Matter* of Entertainment; which should be assisted by proper Gestures and Agitations. There is a kind of *Drama* in the conducting of a well told Story, and the pointing of it is similar to the *Epigram*. If you raise the Expectation of the Audience, you cannot retreat with Honour; as it will gain you no Credit to end your Relation, with the empty Remark of a *That's all*. The Hearers should feel the Force, as if they were electrified.

The Accomplishments of a *Story-Teller* necessary to divert the Audience (wherein so few have Success, and so many fail) are *Good-sense*, *Humour*, *Clearness of Conception*, *Vivacity*, and a *Fluency* of Expression; and to use nothing of Gesture, or Expression, but what arises out of Nature. It has sometimes proved the Lot of a single Person to suffer the Persecution of a *long Story*, who never offended, yet was obliged to hear what neither concerned him, the *Story-Teller*, nor any Body else to know. Men of this unaccountable Turn of Mind, are as solicitous to be heard, as if the *Lives*, *Fortunes*, and *Felicity* of all Persons in the Kingdom depended upon the Relation, while they make their Hearers uneasy, and themselves ridiculous, by their impertinent *Loquacity*. This *Infirmity* of Mankind extends itself beyond the Bounds of *Story-Telling* to other Essays of their intellectual Endowments.

When a *Preacher* of God's Word happens to be one of this Class of *Impertinents*, you may know him by his numerous *Divisions*; and *Subdivisions*, far fetch'd *Criticisms*, incoherent *Digressions*, useless *Remarks*, tedious *Repetitions*, and *Inferences* to no Premises; besides by his weak Answers to strong Objections, and Objections raised to Matters that required none; protracting his unedifying Discourse, and dissipating Opium for an Hour and a Quarter to his Flock, consisting of seven Sleepers to one Hearer.

If he be of the *Law Tribe*, he shall, with an uncommon Volubility of Tongue, dilate upon a Subject for two Hours together, that might be explained in two Minutes. When the *Judges* and *Jury* are so captivated with his Shew of Reasoning, that they shall attend with as much Gravity, as if all he advanced was sound Truth and solid Argument.

If he be a Member of the *Upper* or *Lower House*, he does not proceed four Sentences before the *Discerning* know where to have him an Hour hence; during which Time they divert one another about Matters indifferent, 'till the Gentleman has done.

If he be one of the *modern Scribes* that values himself for his Fluency of Style and pompous Turns of Expression, rather than for being clear and concise you shall find him spinning out a Twelve-penny Pamphlet of Incoherences, the Substance of which might have been intelligibly contained in a single Sheet. And by the like letting off a Multitude of Words (to little Purpose) he shall, in a short Time, be able to compile Volumes for the Bookseller, not worth one Fourth the Copy-Money they are sold for, without a proper Abridgment.

The

The *Story-Tellers* are divided into the *Pitby*, the *Tedious*, the *Marvellous*, the *Inspid*, and the *Delightful*, omitting the *Fithby*.

The *Pitby Story-Teller* is he who conveys a great deal in few Words, engages your Attention, warms your Imagination, and excites your Laughter. Of which Rank were *Xenophon*, *Plutarch*, *Macrobius*, &c. among the Ancients; and Sir *Roger Shakesfides*, *Ned Dry*, *Tom Tickle*, *Peter Point*, &c. among the Moderns.

When the *Nepbali* of *Aristophanes*, a Satyr upon *Socrates*, was acting, his Friends desired him to retire out of View; No, says *Socrates*, I will stand up in *full View*, that every one may enjoy me as a Feast.

Brafidas, the brave *Lacedæmonian* General, caught a Mouse that bit him, by which Means it made its Escape. O *Jupiter*! said he, what Creature is so contemptible, but may obtain its Liberty by contending for it?

Augustus, while he was encamped with his Army, near *Mantua*, was disturbed three Nights successively by the hooting of a Screech Owl, Proclamation was made to the Soldiers, that whoever caught the Offender, so that he might be brought to *Justice*, should have an ample Reward for his Pains. Every One was *loyally* engaged in the Pursuit of this Bird. At last, one more vigilant than the rest, found him in a *bollow* Tree, and brought him in Triumph to the *Emperor*, who saw him with the greatest Pleasure; but gave the Soldier a Sum of Money so far below his Expectation, that he let the Owl fly away that *Instant*: so true a Sense of Liberty ran thro' the lowest of the *Romans*.

The tedious *Story-Teller* is one, who conveys little or nothing in a Multitude of Words; for which many among the Moderns are famous, and particularly the *French*.

The following is a *Fragment* of a long Story, as told by a *Story-Teller* of our own Country, containing a Hundred and Twenty Nine Words, which might have been said in these Ten, namely, *Nine Years ago I was to preach for a Friend*.

"I remember once, I think it was about *Seven Years* ago—No, I lie, it was about *Nine Years* ago, for it was when my Wife was lying in of *Nanny*; I remember particularly the *Midwife* would have had me stay to keep her Company, as it was the heaviest Day of Storm and Rain that I ever saw before or since, but because I engaged to preach for a very worthy Friend of mine, who lived about Twenty Miles off, and this being *Saturday*, I could not defer it till the next Morning, though I had an excellent Nag, which could have carried me there in three Hours; I bought him of a Neighbour, one Mr. *Sprowsfon*, yet because,—I would not put my Friend in a Fright, &c." Thus far he proceeded in one Minute.—The Story lasted an Hour. So that upon a fair Computation, 129 into 60 equal 7740; minus 10, (the Words the whole Story might have been told in) equal 7730 Words, used more than there was occasion for; the true Solution of the *Problem*. Q. E. I.

If a right Application be made of this *Hint*, it would be of admirable Use in the Dispatch of public Business, as well as private Conversation, and even in the writing of Books; on which Account the Reader is desired to excuse our *Plagiarist*, whenever he shall de-

borrowing like most GREAT AUTHORS to serve the present Purpose. And as we read none but the best Authors, their Pardon is expected.

The *Marvellous* is he who is fond of telling such Things as no Man who has the least Use of his Reason can believe. This Humour prevails very much among Travellers and the Vain-glorious.

Dr. Burnet, whose History is of the same Authority with his Travels, gives us large Accounts of the *Marvellous*. And the grave *Ysbrand Ides*, in his Travels, thro' *Muscovy* to *China*, also assures us of many strange Things relating to Elephants which he saw: some lowing like Cows, some yelling like Tygers, some sharming like the Sound of a Trumpet, and some singing like Canary-Birds!

A certain Gentleman in *Ireland*, (remarkably fond of the *Marvellous*) among his inexhaustible Fund of these Kind of *Rarities*, affirms he has got a *Carp*, in his Pond, which, by itself, has, for these Twenty Years past, supplied him with a good Dish of Fish for his Friends, when any of them came to dine, or sup with him. The Manner of it is thus. The *Cook-Maid* goes with a large *Kitchen-Knife* which has a *Whistle* in its Handle, which she no sooner blows, but the *Carp* comes to the Sluice, turns up his Belly till she cuts out as much as she has Occasion for and then scuds away. The *Chafin* fills up in a Day or Two, and the *Carp* grows as sound as a Roach, and ready for the Knife again. Now, if he and his *Cook-Maid* took the most solemn Oath to the Truth of this, or the most sanctified *Quaker* should say *Yea* to it, which is made equal to any *Prelate's* Oath, I should give them as much Credit as the *Colonel*, who said he was at the Battle of *Landen*, where his Majesty King *William*, of glorious Memory, lost the Day: and this *Colonel* being in the utmost Confusion; fled among the Rest, and swore he had galloped above Two Miles after his Horse's Head was shot off by a Cannon Ball; which he should not have missed if the poor Creature had not stopt at a River's Side to drink.

It might be worth while to spend an Evening with Half a Dozen Gentlemen of this *uncommon Genius*, to see how they might improve upon one another; whereby an Opportunity might be also had of observing how far the *Marvellous* might be carried, or whether it had any Limits at all.

The *Insipid* Story-Teller, may not improperly be called the *Soporific*, who goes plodding on in a heavy dull Relation of insignificant Facts. You shall have an Account from such an one, of every minute Circumstance which happened in the Company where he has been; what *he* did, and what *they* did, what *they* said, and what *he* said, with a Million of trite Phrases, with *an*, and *so*, beginning every Sentence; and, to make short of a long Story, and, as I was saying so it happened, with numberless other *Expletives* of equal Signification. On which it may be remarked, it is a dreadful Thing when Men have neither the Talent of speaking, nor yet the Discretion to hold their Tongue; and, that of all People, such as are the least qualified are commonly the most earnest in this Way of Conversation.

The *Delightful* Story-Teller, is one who adds not a Word too much, or says too little; who can in an easy Manner to himself, give

give a great deal of Pleasure to others in his Relations ; and desires rather to divert and instruct than be applauded. He shews a good Understanding, and a delicate Turn of *Wit*, in every Thing that comes from him ; who can entertain his Company better with the History of a Child, and its *Hobby Horse*, than one of the *Soporifics* can with his Account of *Alexander* and *Bucephalus*. The Latter is not unlike a bad Reader, or Preacher, who makes an ingenious Performance detestable by drawing it thro' his Mouth. The delightful Story-Teller can't be described by any Words so well as his own.

Those grave Fellows, who sift every Thing with the utmost Nicety, and find the Malignity of a *Lie*, in a Piece of Humour, pushed a little beyond exact Truth, are not to be esteemed for their Penetration more than those who keep a steady Countenance, when a pleasant Thing is said, and ask, *well*, and *what then* ? Men of Wit and Parts should treat one another with Benevolence and Respect, since it is laid down as a *Maxim*, if you seem to have a good Opinion of another Man's *Wit*, he will allow you to have *Judgment*.

Sir Roger *Shakefide*, who is allowed to tell a Story with as good Grace as any Man, will often sit attentive on this Occasion ; and tho' he is known to speak well, he will readily join the general Laugh, in Support of the Merit or Applause of a *Rival* : well observing, that a Man, who talks of any Thing he is distinguished for, has very little to get ; but a great deal to lose, if taken from him. And therefore this is the prudent Part a Man should act, who has gained Superiority in any Branch of Knowledge. And 'tis allowed there is not a handsomer Thing said of Mr. *Cowley*, in his whole Life, than " none but " his intimate Friends ever discovered he was a great *Poet* by his Discourse."

When Sir Roger tells a Story, he always personates the Founder ; if a *Statesman*, he looks grave and wise ; if a *Divine*, he puts on an Air of Sanctity ; if a *Beau*, he plays the Coxcomb ; and if a *Coxcomb*, he plays the Fool : suiting his Gestures to the People he is about to represent.—He never is tedious, nor administers Opiates for Cordials.

THEREFORE, for the Time to come, be it hereby *Enacted*, that if any Person shall presume to exceed *Six Minutes* in a Story, to *bum* and *baw*, use Hyphens between his Words, make Digressions, and engage the Company to hear another Story, before he has done with the first ; or speaks fifty Words more than are necessary, or flammers, or hesitates in his Speech, that then it shall and may be lawful for any one, or more, of the said Company, or the *whole* Company together, to pull out his, her's, or their Watches, and to make use of broad Hints, or *Innuendos*, for him, the said Story-Teller, to break off, tho' abruptly ; otherwise it shall, or may be lawful, for any of the said Company to cram a Handkerchief into the said Story-Teller's Mouth, for his first *Default* ; and for the second, he shall be turned out of Company.

NUTCRACKER.

Of SATYR.

THE chief Satyrists among the Ancients are *Horace*, *Juvenal*, *Persius* ; among the Moderns, *Regnier* and *Boileau* in French

Dryden, Oldham, Rochester, Buckingham, Pope, Swift, Young, &c. among the *English*.

Satyr should excite our *Laughter of Abhorrence* at whatever deserves them; by exposing Vice and Folly, in order for Reformation. And should consist of *Investive, Ridicule, and Raillery*; be lively, entertaining, and moral, to please and convince while it exposes to Shame.

The *Essential Quality* of a Satyr is *Good-humour*, for commanding the Attention, and producing Reformation.

"Rage you must hide, and Prejudice lay down,

"A Satyr's Smile is sharper than a Frown.

"The feather'd Shaft adds Saviness to the Dart,

"So softest Words send Satyr to the Heart.

It is *Good-nature or Good-humour*, commands that Disdain of all Baseness, Vice and Folly, when the Writer expresses himself with *Smartness* against the Errors of Men without *Bitterness* to their Persons.

Good-humour keeps the Mind in Equanimity, and from throwing a Man unseasonably out of his Character on an Offence given. To appear diverted at a designed Offence completely parries it, and turns it on the Offender. As when *Virgil* expressed himself. He that did not bate *Bavius* might love *Mevius*, it was a Delicacy of Scorn and Derision, spoken in perfect good Humour, without any Mixture of Anger at their Absurdities, being far worse, in Effect, than if he had called them directly a Couple of Blockheads.

The best Good Man, with the worst natured Muse, is the Character of the late Duke of *Buckingham*, as famous for his Humanity, as for his Wit. Satyr is divided into

Narrative, being a simple Narration, or Recital of Abuses, in the Satyrists's own Person,—such as the first of *Juvenal*.

Dramatic, being that kind wherein several Person's Discourse together, whether they be nameless, as in the first of *Perfius*; or have Names, as of *Catius*, and *Damasippus*.

Mixed, being compounded of both the Former, as that fine one of *Horace*, *Idem forte via sacra*.

Grave and animated, inveighing with Warmth and Earnestness against Corruption and Vice in every Shape; as those of *Juvenal* and *Perfius*.

Sportive and *Lighter*, playing with Men's Vices and Follies; but taking every Opportunity of making them feel the Satyr: Such are those of *Horace*, hence said to be *Sermoni propria*.

The *Grave* brandishes the naked Sword; the *Sportive* presents a *Thirrus*, like that of the antient Satyrs, surrounded with Vine Leaves, which stabs unawares! The Heat of the *Former* sometimes degenerates into *Fury* and *Indignation*; as the Calmness of the *Latter* sometimes sinks to mere *Raillery*. Between these two Extremes are a great Number of *Species* and *Degrees*.

The *Former*, especially dictated by Passion, is much the easier; as, in the *Latter*, Nothing is more difficult than to make People of Taste laugh; even at the Expence of others. The attaining to which is by the Fruit of *Genius*, and natural Talents; rather than by Rules. *Vanity, Self-Love* and *Resentment*, are Masters sufficient to teach them to a Writer, not without Wit and Judgment. For thus *Juvenal*,

St Natura negat, facit Indignatio versum.

The

The two *Leaders* of these two Sorts of Satyrs lived in Times very different. *Horace* was intimate with *Augustus Cæsar*, a Prince of great Goodness and Humanity, whose Court was formed by his Example. And the Faults that *Poet* had to fall upon were little Inconsistencies in Behaviour, false Pretensions to Politeness, or impertinent Affectations of what some Men were unqualified for.

Juvenal lived under *Domitian*, in whose Reign every Thing great and noble was banished the Habitations of the Men of Power. He therefore attacks Vice as it passes in *Triumph*! and not, as *Horace* did, breaking into Conversation. The Fall of Empire, Contempt of Glory, and universal Degeneracy of Manners are before *Juvenal's* Eyes in all his Writings. To have talked like *Juvenal* in the Days of *Augustus*, or like *Horace* in those of *Domitian*, had been equal Madness. Morality and Virtue are every where recommended in *Horace* from the Harmony, Propriety, and Convenience of pursuing them, as became a Man living in a polite Court.

But Vice and Corruption are attacked by *Juvenal* in a Style denoting as if he feared that he should not be heard, unless he calls to them in their own Language, with a barefaced Mention of the Villanies and Obscenities of his Contemporaries. See *Tat.* V. IV. No. 242, P. 219 following.

The *Italians* divide Satyr into serious and jocular, which latter is our *Burlesque*.

Personal Satyr exposes particular Characters, affecting Men's Reputation, on which depends their Interest; and is never justifiable, but as Pillories and Corporal Punishments are to barefaced Villanies and Cheats; and to Offences deserving public Shame. HONESTUS.

A TRADITIONAL ACCOUNT of the miraculous Deliverance of Lord SHORELAND at the Isle of Sheepy in Kent; and of the remarkable PROPHECY of an OLD-WOMAN, who had formerly been his Servant, foretelling his Lordship's Death.

THE Lord *Shoreland*, we are told, lived in this Island in the Reign of Q. ELIZABETH, and happening to come over the Minster-Church-Yard there, when a Clergyman refused to bury a Corps, till he was paid his Fee for reading the funeral Service; his Lordship in Heat of Passion, threw the Parson into the Grave, put the Coffin down upon him, and filled the Grave up immediately, by which Means a Clergyman of that Island was buried alive.

When a Body of the Clergy were about to apply to her Majesty for Justice on this Occasion, who at that Time lay at Anchor at the Nore; the Lord *Shoreland* instantly mounted his Horse, leaped into the Sea, and swam to the Ship, where the Queen seeing him in Danger, but undauntedly swimming round, and being informed for what Reason he did it, she, in a merciful Surprise, granted him Pardon; which done he made his Obeisance, returned Thanks to Majesty, swam back to the Island, and landed on the Shore the *Minster-Church*, which is about Six Miles backwards a wards.

To corroborate this Miracle there is the Representation of a *Horse's* Head, placed on the Top of the Spire at the Minster-Church for a *Weathercock*, which is always kept in good Repair; in which Church the Remains of Lord *Shoreland* are deposited; on whose Tomb, which is a Composition of Plaister, may likewise be seen the Representation of a *Horse's* Head rising out of the Waves, in Commemoration of this surprising Adventure.

The said Tradition farther adds, that when Lord *Shoreland* had landed from the *Noré*, by Means of his Horse, and was in Possession of his Pardon, for the Barbarity which he had been guilty of, an old Woman, who before had been his Servant, prophesied, "*That the very Horse which had then saved his Lordship's Life, should certainly be the Cause of his Death.*" To prevent the fulfilling of this Prophecy, his Lordship drew out his Rapier, and killed him upon the Spot, leaving his Carcase upon the Sands, whither he sometimes used to go to look on the Skeleton of this noble Creature; and one Day as he was viewing the Head and shewing it to his Friends, he struck the Toe of his Shoe so hard against it, that a sharp Splinter of the Bone entering his Shoe, wounded him in such a Manner, as brought on a Mortification, of which he died.

Some affirm, that this Lord *Shoreland* was Contemporary with Lord *Cheyne* and a Sharer of his Fortune; and that he became his sole Heir and Executor, while others say he was only Lord of the Manor of *Shoreland*, since called the Isle of *Sheepy*, from the Number of Sheep feeding thereon; and that after Lord *Cheyne's* Death, he became chief Owner thereof: yet by comparing Lord *Shoreland's* Monument with Lord *Cheyne's* Tomb-Stone, the former bears the strongest Marks of Antiquity.

'Tis farther asserted by the Inhabitants of this Island, that the Lord *Cheyne* had Horses trained to the Water, and kept in Stables underground for their better travelling in the Night, and swimming out and into the Island, with their Riders, on sudden and secret Expeditions; the Ruins of which Stables are now to be seen in the Parish of *East-Church*.

Another Account says, that after the Dissolution of Monasteries (which was in 32 *Hen. VIII.*) when the Fryars and Priests were travelling out of the Kingdom, by Way of *Sittingburne*, *Ospringe*, *Bleynewood*, &c. to *Dover* for France, with the Wealth they had acquired by their religious Imposture, the Lord *Cheyne's* Party, on Horseback, made Expeditions against them in the Night, and distributed the Pope's Treasure for the Use of *English* Protestants.

The Lord of *Shoreland*, supposed to be at the Head of Lord *Cheyne's* Party, and a bold Man, probably became his Favourite and Heir through that Occasion.

Lord *Cheyne* was born the 17th of *Edward IV.* (Anno 1477) and died in *December*, Anno 1559; he was Knight of the most Noble Order of the Garter, *Warden* of the Cinque Ports, *Treasurer* of the Household to King *Henry VIII.* *Edward VI.* *Queen Mary*, and *Queen Elizabeth*, and a Member in each of their Privy Councils.—As the *Latin* Inscription of his Tomb-stone, in the Middle of the Minster-Chancel, sets forth, which is situated between what is called the *Spanish* Embassador's Tomb there, on the North Side of the North Chancel,

Chancel, and Lord Shoreland's Tomb, on the South Side of the South Chancel.

Lord Cheyne was also Constable of *Queenborough*, an Office of some Dignity.

His Lordship being a Promoter of the Protestant Religion, and an avowed Enemy to the Pope and his Adherents, tramples upon the Pope's Effigies, lying at his Feet on his Tomb-stone; and the Lord Shoreland has the Pope lying at his Feet also: His own Head is represented leaning on his left Hand, with his Sword by his Side, spurs on, and lightly accoutred,—but without either *Heraldry* or *Inscription* upon his Tomb. His Horse's Head, (about which the Miracle is told) is placed to the right of him, at a Distance, between his Feet, and the Wall.

UPNORENSIS.

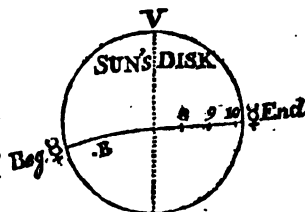
MERCURY'S Transit over the Sun, May 6, 1753, as observed by Mr. W. Sutton, of King's Newnham.

THE central Egress, at 10 h. 6 m. in the Morning, apparent Time. The visible Path of Mercury over the Sun appeared as delineated, from East to West, being retrograde.

The Distance of Mercury from the Sun's Centre, at the Middle, could not be observed by Reason of large Clouds interposing.

The Macula, or Spot, at B, appeared about the same Size with Mercury's Body.

The Diameter of Mercury to that of the Sun, seemed to be about 1 to 100, as in the Figure.



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ECLIPSES.

ECLIPSES, 1754, by Mr. Thomas Cowper, of
Wellingborough.

THERE will be Six Eclipses this Year; four of the *Sun*, and two of the *Moon*; but all invisible to the Inhabitants of *Great-Britain*.

1. Of the *Sun*, *Saturday*, *March* 23, between 10 and 11 at Night.

2. Of the *Moon*, on *Sunday* the 7th of *April*, Ten Minutes after Eight in the Morning.

This *Eclipse* is nearly central, and will be visible to the greatest Part of *America*. A Calculation and Sketch thereof for *For.-Royal*, in *Jamaica* is as follows.

	H.	M.	Morning at <i>Ja-</i> <i>maica</i> ap- parent Time.
Beginning -	1	14	
Beg. Tot. Dark.	2	11	
Middle - - -	2	59	
End Tot. Dark.	3	47	
End - - -	4	44	
Digits 21°. 47'.			



3. Is a small *Eclipse* of the *Sun*, on *Monday*, the 22d of *April*, between two or three in the Afternoon.

4. A small *Eclipse* of the *Sun*, on *Monday*, *September* 16, between 4 and 5 in the Afternoon. This and the Former of the *Sun*, by Reason of the *Moon's* great South Latitude, will be only visible in the unknown Southern Parts of this Earth.

5. Is a total *Eclipse* of the *Moon*, on *Tuesday*, the 1st of *October* at 10 in the Forenoon; consequently invisible to us. But the Time and Manner of its Appearance at *Charles-Town*, *South Carolina*, will be as follows.

	H.	M.	Morning at <i>Charles-</i> <i>Town</i> , in <i>South</i> <i>Carolina</i> , apparent time.
Begin - - -	2	54	
Immersion - -	4	0	
Middle - - -	4	50	
Emersion - - -	5	40	
Moon sets - -	6	11	
Then Dig. ecl. 6° 2'			
End - - - - -	6	46	
Digits in all 20° 44'			



At the Middle the *Moon* is *Vertical* to the Part of the *pacific Ocean*, which lies in Lat. 3° 15' North, and Longit. 151° 15' West from *London*.

6. Is of the *Sun*, on *Wednesday*, *Oct.* 16, between 1 and 2 in the Morning.

ASTRONOMICAL REMARKS.

ON the 8th of *September*, between 10 and 11 at Night, the 29th of *November*, about 6 in the Evening, and the 27th of *December*, at 4 in the Morning 1754, the Moon makes very near *Appulses* to *Ald.baran*; but there happens no Occultation of that *Star* till 1755.

The *PLANET VENUS* is a *Morning Star* till the End of *March*, when she becomes an *Evening Star*, and so continues to the Year's End.

JUPITER is seen both Night and Morning for the first Four Months of the Year, and continues an *Evening Star* till the 21st of *August*, and from thence he is a *Morning Star* to the Conclusion of the Year.

MARS is an *Evening Star* till the 29th of *October* and a *Morning Star* for the Rest of the Year.

Towards the End of *March*, after Sunset, and at *Christmas* after Sunrise, *MERCURY* may be seen with the naked Eye, for several Days, if the Air be serene.

A short Account of the *HOLIDAYS* kept at the *PUBLIC OFFICES* for the Year 1754; as inserted in the *Memorandum Books*, and our *Ladies Chronologer*.

Jan. 1	Circumcision	July 15	St. Swithin
6	Epiphany	25	St. James
25	St. Paul		
30	K. Cha. I. Mart.	Aug. 1	Lammas Day
Feb. 2	Purif. V. Mary	11	Prise Augusta born
14	Valentine	24	St. Bartholomew
24	St. Mathias		
26	Shrove Tuesday	Sept. 12	London burnt 1666. N. S.
27	Ash Wednesday	14	Holy Rood
Mar. 1	St. David	29	K. Geo. I. landed N.S.
5	Prise Hesse born	21	St. Matthew
25	Lady Day. Pr. Edward born	29	St. Michael
Apr. 12	Good Friday		
15	Easter Monday	Oct. 18	St. Luke
16	— Tuesday	22	K. Geo. II. crowned
17	— Wednesday	28	St. Simon and Jude
23	St. George		
25	St. Mark	Nov. 1	All Saints
26	D. Cumberl. born	2	All Souls. Prs. Orange bo.
May 1	St. Philip and Jac.	5	Powder Plot
23	Ascension Day	9	Lord Mayor's Day
29	K. Ch. II. Rest.	10	K. Geo. II. Birth-Day kept but born 9th, 1683, N.S.
June 3	Whit Monday	27	Qu. Eliz. Acces. N.S.
4	Prince of Wales born.	30	S. And. Prs. Dow. Wales. bn
10	P. Am. and Car. born.		
11	S. Bar. In. K. G. II.	Dec. 21	St. Thomas
24	St. John Bap.	25	Christmas Day
26	K. Geo. II. pro.	26	St. Stephen
29	St. Pet. and Paul	27	St. John
		28	Innocents

N. B. We shall be more copious next Year, by adding all the Feasts, and Fast-days and Returns, Remarkable Days, &c;

ANUARY. ROYAL DIARY, or EPHEMERIS. 1754.

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2	12	7	49	22	55	43	8	1	45	16	Δ	7	18	21	20	Δ	46	25	Δ	36	20	0	0	
3	13	Δ	9	0	22	49	56	8	Δ	52	16	□	30	18	30	22	2	1	25	11	18	2	8	
4	14	22	10	9	22	43	41	8	12	46	16	3	24	18	Δ	40	23	16	25	10	14	98	1	
5	15	11	19	22	37	0	9	6	16	18	18	7	31	24	31	25	Δ	11	28	4	2	52	2	
6	16	12	30	22	29	52	9	13	16	*	12	19	2	25	46	25	19	11	Π	39	3	45	3	
7	17	13	40	22	22	15	9	8	20	16	8	6	19	14	27	8	1	25	8	36	25	41	4	
8	18	8	14	49	22	14	15	9	23	27	16	0	19	*	26	28	3	16	25	59	10	8	4	
9	19	14	15	58	22	5	47	9	34	15	53	19	15	39	29	31	26	3	24	53	4	59	4	
10	20	17	6	21	56	54	9	41	15	Δ	47	19	□	53	0	5	46	27	6	9	Ω	53	4	
11	21	18	15	21	47	35	9	48	15	Δ	40	20	16	7	2	Δ	2	27	Δ	47	24	59	4	
12	22	Δ	19	23	21	37	50	9	Δ	55	15	33	20	Δ	21	3	12	17	28	3	31	9	Δ	
13	23	22	20	30	21	27	40	10	2	15	26	20	18	36	4	□	32	29	□	21	24	75	2	
14	24	21	37	21	17	6	10	□	9	15	12	20	52	5	19	47	0	10	17	Δ	27	1	9	
15	25	□	22	43	21	6	8	10	3	16	15	12	12	1	8	7	2	1	*	15	22	22	0	
16	26	6	23	48	20	54	43	10	*	23	15	□	52	21	24	8	*	17	2	17	15	5	Δ	
17	27	*	24	53	20	42	56	10	8	30	14	17	58	21	8	41	9	3	2	17	19	18	2	
18	28	1	25	57	20	30	46	10	37	14	Δ	51	21	4	58	10	48	4	22	2	23	3	16	
19	29	27	0	20	18	12	10	43	14	23	43	22	16	12	3	5	30	15	13	4	2	4	2	
20	30	28	2	20	5	16	10	50	14	36	22	35	12	3	18	6	Δ	41	27	52	4	35	4	
21	1	1	29	4	19	51	57	10	Δ	57	14	28	22	54	14	□	33	7	19	54	10	15	18	
22	2	Δ	30	5	19	38	16	11	1	4	14	21	Δ	13	15	9	48	9	8	22	35	5	0	
23	3	21	31	5	19	24	23	11	11	14	8	13	23	1	33	17	3	10	24	4	47	4	51	
24	4	32	4	19	9	48	11	17	14	19	6	23	□	53	18	18	1	41	16	45	4	30	4	
25	5	33	2	18	55	3	11	24	13	58	24	13	13	19	33	13	0	28	44	3	57	3	57	
26	6	34	0	18	39	57	11	*	31	13	50	24	34	20	*49	14	*	19	10	Δ	34	3	14	
27	7	34	57	18	24	30	11	2	37	13	43	24	*55	22	23	4	15	Δ	40	24	24	2	23	
28	8	*35	53	18	8	44	11	□	44	13	Δ	35	25	5	17	23	19	17	2	Δ	15	1	25	
29	9	10	36	48	17	52	37	11	15	50	13	19	27	25	39	24	□	34	18	□	25	16	9	
30	10	37	41	17	36	13	11	56	13	19	26	1	25	19	49	19	5	49	28	11	0	Δ		
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D.	Lon. rise fersap.	len. d. and d. in.	Day br. flow Clocks.	Lat. N. b rises M.	Lat. N. 2 rif. A.	Lat. N. 3 sets M.	Lat. N. 4 rises M.	Lat. N. 5 r.f. M.	D.	D rises & sets	D Souths.
1	8h 5m	7h 51	6h 0m	0°N 31'	0°N 50'	1°N 57'	0°N 40'	2°N 12'	3	1 38	5 a 50
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	3 59	0 14	6 32	7 38	6 34	3 40	6 40	6 24	9	rises	Morn.
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	4 4	0 23	8 39	7 10	6 9	3 25	6 49	6 18	13	10 23	3 37
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	4 10	0 35	10 27	6 59	5 44	3 11	6 54	6 19	17	2 a 6	7 1
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BRUARY. ROYAL DIARY, or EPHEMERIS. 1754. N.

F. M. 7d. oh. 5m. A. L. Q. 14h. 5m. M. N. M. 22d. 3h. 43m. M.

☉ in	Decl. So.	☿ D	♈ R	♈ D	♈ R	♈ D	♈ R	♈ D	♈ R	Lat. 1
12° 39' 23"	17° 2' 27"	12° 9'	13° 2'	26° 45'	28° 19'	22° 40'	23° 7'			2° 44'
13° 40'	16° 45'	12° 16'	13° 54'	27° 7'	29° 10'	24° 24'	7° 6" 110			3° 37'
14° 41'	16° 27' 31"	12° 23'	14° 46'	27° 32'	30° 49'	25° 35'	19° 37'			4° 21'
15° 41'	16° 9' 36"	12° 29'	15° 38'	27° 56'	32° 57'	26° 4'	36° 36'			4° 51'
16° 42'	15° 51' 26"	12° 35'	16° 31'	28° 20'	35° 20'	28° 8' 35"	18° 5'			5° 2'
17° 43'	15° 32' 59"	12° 42'	17° 23'	28° 44'	38° 35'	30° 5'	25° 56'			4° 55'
18° 44'	15° 14' 16"	12° 48'	18° 18'	29° 9'	41° 50'	33° 18'	6° 4° 26'			4° 26'
19° 44'	14° 55' 18"	12° 54'	19° 12'	29° 34'	45° 7'	35° 18'	3° 39'			3° 39'
20° 45'	14° 36' 4'	13° 0'	20° 59'	29° 59'	48° 21'	37° 30'	30° 2° 36'			3° 36'
21° 46'	14° 16' 37"	13° 6'	21° 52'	30° 24'	51° 36'	40° 12'	33° 30'			1° 22'
22° 46'	13° 56' 55"	13° 12'	22° 44'	30° 49'	54° 51'	43° 18'	2° 0° 6'			0° 6'
23° 47'	13° 36' 59"	13° 18'	23° 36'	31° 16'	58° 12'	46° 22'	21° 9'			1° 9'
24° 47'	13° 16' 50"	13° 24'	24° 28'	31° 43'	61° 21'	49° 15'	52° 2° 18'			2° 18'
25° 48'	12° 56' 28"	13° 29'	25° 21'	32° 9'	64° 36'	52° 13'	29° 13'			3° 17'
26° 48'	12° 35' 53"	13° 35'	26° 13'	32° 36'	67° 51'	55° 19'	12° 13'			4° 4'
27° 49'	12° 15' 7"	13° 41'	27° 6'	33° 2'	71° 6'	58° 24'	55° 4° 40'			4° 40'
28° 49'	11° 54' 9"	13° 47'	28° 10'	33° 29'	74° 21'	61° 40'	7° 22'			5° 0'
29° 50'	11° 33' 0"	13° 52'	29° 51'	34° 56'	77° 35'	64° 19'	38° 5° 7'			5° 7'
30° 50'	11° 11' 39"	14° 58'	30° 44'	35° 23'	80° 50'	67° 44'	45° 4° 59'			4° 59'
1° 51'	10° 50' 8"	14° 3'	31° 36'	36° 51'	83° 22'	70° 47'	47° 4° 38'			4° 38'
2° 51'	10° 28' 8"	14° 9'	32° 29'	38° 20'	85° 47'	73° 31'	25° 4° 5'			4° 5'
3° 51'	10° 6' 38"	14° 14'	33° 22'	39° 50'	88° 24'	76° 30'	3° 22'			3° 22'
4° 51'	9° 44' 38"	14° 20'	34° 15'	41° 25'	90° 52'	79° 18'	2° 30'			2° 30'
5° 52'	9° 22' 30"	14° 25'	35° 10'	43° 52'	93° 27'	82° 19'	2° 31'			2° 31'
6° 52'	9° 0' 23"	14° 30'	36° 10'	46° 22'	96° 42'	85° 37'	54° 0° 29'			0° 29'
7° 52'	8° 37' 49"	14° 35'	37° 56'	48° 53'	99° 37'	88° 24'	55° 0° 25'			0° 25'
8° 52'	8° 15' 17"	14° 40'	39° 50'	51° 20'	102° 50'	91° 16'	3° 40'			3° 40'
9° 53'	7° 52' 37"	14° 45'	41° 44'	53° 39'	105° 5'	94° 19'	2° 41'			2° 41'

Successive Positions of all the Planets with the Moon, (commonly called the *Aspects*) are introduced between the *Deg.* and *Min.* of the respective Planets Place, where the Number under the Sign of the Position, or *Aspect*, signifies *Hours* Noon of the Day against which that Sign is placed.

☉ rise & sets	len. d. and app. D. in.	D. br. ☉ slow.	Lat. N. h Rise M.	Lat. N. 24 sets M.	Lat. N. ♂ sets M.	Lat. S. ♀ Rise M.	Lat. S. ♂ Rise M.	D.	☉ rise & sets	D.	☉ rise & sets	South.
7 ^h 27	9 ^h 7	5 ^h 30	0° N 29	0° N 55	2° N 3	0° S 37	0° S 56	1	1m 22		6 a 39	
4 34	1 23	14 12	5 M 58	8 0	2h m 34	6h m 59	6h m 50	3	3 30		8 27	
7 18	9 24	5 22	0 29	0 56	2 2 0	48	1 25	7	7 15		10 24	
4 42	1 40	14 46	5 40	7 M 18	2 26	6 57	6 49	9	9 25		morn.	
7 9	9 42	5 14	0 28	0 56	2 2 0	57	1 48	11	11 33		3 6	
4 52	1 58	14 48	5 22	8 57	2 48	6 54	6 51	13	morn.		4 52	
7 0	10 1	5 6	0 28	0 37	2 1 1	5 2 1	15	15	2 4		6 27	
5 1	2 17	14 34	5 5	6 36	2 11	6 49	6 53	17	3 51		8 20	
5 30	10 20	4 57	0 28	0 57	2 0 1	13	2 7	19	5 8		9 55	
5 10	2 36	14 4	4 47	6 15	2 5 6	43	6 53	21	6 9		11 26	
5 41	10 40	4 48	0 28	0 57	1 59	1 18	2 1	23	6 58		0 a 52	
1 26	2 46	13 16	4 30	5 55	2 0 6	35	25	25	9 3		2 17	
								27	12 21		3 47	

☉ 18d. 3h. 52m. 59f. E. T. Eq. — 14m. 23f. th. 18d
36f. Ap. T. ☉ mea. Anom. 7f. 19.° 56'. 52". 51'''.

MARCH. ROYAL DIARY, or EPHEMERIS. 1754.N.

Q. 23^d 5^h 37^m. FM. 8^d 10^h 41^m. n. LQ. 15^d 6^h 58^m. a. NM. 23^d 10^h 11^m. n. EQ. 31^d 5^h 8^m. a.

D.	☉ in X	Decl. So.	☿ D. by	♂ D. by	♀ D. by	♂ D. by	♀ D. by	☿ in II	Lat.
1	10 ^h 53 ^m 31 ^s	7° 29' 51"	14° 50'	9° 38'	9° 08'	3° 01' 19"	9° 01'	1° 59'	3° 3'
2	11 ^h 53 ^m 13 ^s	7° 6' 59"	14° 55'	9° 43'	9° 14'	4° 34'	10° 54'	1° 5'	4° 2'
3	12 ^h 53 ^m 16 ^s	6° 44' 2"	14° 49'	9° 27'	10° 7'	5° 49'	12° 16'	2° 24'	4° 5'
4	13 ^h 53 ^m 17 ^s	6° 20' 59"	15° 8' 4"	9° 21'	10° 36'	7° 15'	14° 44'	2° 26'	5° 1'
5	14 ^h 53 ^m 16 ^s	5° 57' 49"	15° 3' 8"	9° 6' 16"	11° 6'	8° 19'	16° 5' 39"	2° 26'	5° 5'
6	15 ^h 53 ^m 13 ^s	5° 34' 33"	15° 13'	9° 21'	11° 36'	9° 34'	18° 35'	1° 19'	4° 4'
7	16 ^h 53 ^m 9 ^s	5° 11' 14"	15° 18'	9° 6'	12° 6'	10° 48'	20° 31'	2° 16'	4° 4'
8	17 ^h 53 ^m 3 ^s	4° 47' 51"	15° 22'	9° 1'	12° 31'	12° 8'	22° 28'	1° 17'	3° 3'
9	18 ^h 52 ^m 54 ^s	4° 24' 25"	15° 6' 47"	8° 57'	13° 2' 7"	13° 18'	24° 26'	2° 41'	3° 5'
10	19 ^h 52 ^m 42 ^s	4° 0' 55"	15° 0' 31"	8° 19' 52"	13° 33'	14° 33'	26° 24'	1° 45'	3° 0'
11	20 ^h 52 ^m 29 ^s	3° 37' 24"	15° 6' 36"	8° 0' 47"	14° 3' 9"	15° 47'	28° 23'	2° 34'	2° 4'
12	21 ^h 52 ^m 14 ^s	3° 13' 50"	15° 42'	8° 20' 43"	14° 39'	17° 2'	30° 21'	2° 10'	2° 4'
13	22 ^h 51 ^m 58 ^s	2° 50' 12"	15° 44'	8° 39'	15° 30'	18° 47'	32° 20'	2° 51'	3° 1'
14	23 ^h 51 ^m 40 ^s	2° 26' 32"	15° 48'	8° 35'	15° 41'	19° 31'	34° 17'	2° 20'	3° 1'
15	24 ^h 51 ^m 19 ^s	2° 2' 51"	15° 52'	8° 31'	16° 41'	20° 23'	36° 14'	2° 23'	4° 42'
16	25 ^h 50 ^m 57 ^s	1° 39' 10"	15° 56'	8° 27'	16° 43'	22° 1'	38° 9'	1° 5'	5° 4'
17	26 ^h 50 ^m 33 ^s	1° 15' 28"	16° 0'	8° 24'	17° 14'	23° 15'	40° 11'	1° 34'	5° 14'
18	27 ^h 50 ^m 7 ^s	0° 51' 45"	16° 4'	8° 21'	17° 46'	24° 15'	42° 11'	1° 28'	5° 5'
19	28 ^h 49 ^m 38 ^s	0° 28' 2"	16° 7'	8° 18'	18° 17'	25° 44'	44° 13'	1° 46'	4° 52'
20	29 ^h 49 ^m 6 ^s	0° 4' 21"	16° 11'	8° 15'	18° 49'	26° 59'	46° 17'	2° 24'	4° 21'
21	☿ 48 ^m 32 ^s	N° 19' 21"	16° 14'	8° 13'	19° 21'	28° 14'	48° 17'	2° 31'	3° 35'
22	1° 47 ^m 57 ^s	0° 43' 1"	16° 17'	8° 10'	19° 53'	29° 29'	50° 18'	2° 18'	2° 44'
23	2° 47 ^m 20 ^s	1° 6' 39"	16° 20'	8° 8'	20° 25'	30° 44'	52° 14'	2° 8'	2° 45'
24	3° 46 ^m 41 ^s	1° 30' 16"	16° 23'	8° 20'	20° 58'	32° 58'	54° 41'	1° 0'	0° 41'
25	4° 45 ^m 59 ^s	1° 53' 51"	16° 26'	8° 4' 21"	21° 30'	34° 13'	56° 22'	1° 58'	0° 52'
26	5° 45 ^m 15 ^s	2° 17' 23"	16° 29'	8° 0' 22'	22° 3'	35° 27'	58° 19'	4° 8'	1° 30'
27	6° 44 ^m 30 ^s	2° 40' 52"	16° 32'	8° 8' 0'	22° 34'	36° 42'	60° 16'	2° 21'	2° 38'
28	7° 43 ^m 43 ^s	3° 4' 18"	16° 34'	7° 59'	23° 7'	37° 56'	62° 35'	2° 51'	3° 29'
29	8° 42 ^m 54 ^s	3° 27' 42"	16° 37'	7° 17'	23° 39'	38° 11'	64° 33'	3° 34'	4° 16'
30	9° 42 ^m 3 ^s	3° 51' 0"	16° 40'	7° 58'	24° 12'	39° 25'	66° 24'	4° 37'	4° 51'
31	10° 41 ^m 10 ^s	4° 14' 15"	16° 43'	7° 57'	24° 45'	40° 29'	68° 9'	5° 13'	5° 13'

D.	☉ in X	Decl. So.	☿ D. by	♂ D. by	♀ D. by	♂ D. by	♀ D. by	☿ in II	Lat.
1	10 ^h 53 ^m 31 ^s	7° 29' 51"	14° 50'	9° 38'	9° 08'	3° 01' 19"	9° 01'	1° 59'	3° 3'
2	11 ^h 53 ^m 13 ^s	7° 6' 59"	14° 55'	9° 43'	9° 14'	4° 34'	10° 54'	1° 5'	4° 2'
3	12 ^h 53 ^m 16 ^s	6° 44' 2"	14° 49'	9° 27'	10° 7'	5° 49'	12° 16'	2° 24'	4° 5'
4	13 ^h 53 ^m 17 ^s	6° 20' 59"	15° 8' 4"	9° 21'	10° 36'	7° 15'	14° 44'	2° 26'	5° 1'
5	14 ^h 53 ^m 16 ^s	5° 57' 49"	15° 3' 8"	9° 6' 16"	11° 6'	8° 19'	16° 5' 39"	2° 26'	5° 5'
6	15 ^h 53 ^m 13 ^s	5° 34' 33"	15° 13'	9° 21'	11° 36'	9° 34'	18° 35'	1° 19'	4° 4'
7	16 ^h 53 ^m 9 ^s	5° 11' 14"	15° 18'	9° 6'	12° 6'	10° 48'	20° 31'	2° 16'	4° 4'
8	17 ^h 53 ^m 3 ^s	4° 47' 51"	15° 22'	9° 1'	12° 31'	12° 8'	22° 28'	1° 17'	3° 3'
9	18 ^h 52 ^m 54 ^s	4° 24' 25"	15° 6' 47"	8° 57'	13° 2' 7"	13° 18'	24° 26'	2° 41'	3° 5'
10	19 ^h 52 ^m 42 ^s	4° 0' 55"	15° 0' 31"	8° 19' 52"	13° 33'	14° 33'	26° 24'	1° 45'	3° 0'
11	20 ^h 52 ^m 29 ^s	3° 37' 24"	15° 6' 36"	8° 0' 47"	14° 3' 9"	15° 47'	28° 23'	2° 34'	2° 4'
12	21 ^h 52 ^m 14 ^s	3° 13' 50"	15° 42'	8° 20' 43"	14° 39'	17° 2'	30° 21'	2° 10'	2° 4'
13	22 ^h 51 ^m 58 ^s	2° 50' 12"	15° 44'	8° 39'	15° 30'	18° 47'	32° 20'	2° 51'	3° 1'
14	23 ^h 51 ^m 40 ^s	2° 26' 32"	15° 48'	8° 35'	15° 41'	19° 31'	34° 17'	2° 20'	3° 1'
15	24 ^h 51 ^m 19 ^s	2° 2' 51"	15° 52'	8° 31'	16° 41'	20° 23'	36° 14'	2° 23'	4° 42'
16	25 ^h 50 ^m 57 ^s	1° 39' 10"	15° 56'	8° 27'	16° 43'	22° 1'	38° 9'	1° 5'	5° 4'
17	26 ^h 50 ^m 33 ^s	1° 15' 28"	16° 0'	8° 24'	17° 14'	23° 15'	40° 11'	1° 34'	5° 14'
18	27 ^h 50 ^m 7 ^s	0° 51' 45"	16° 4'	8° 21'	17° 46'	24° 15'	42° 11'	1° 28'	5° 5'
19	28 ^h 49 ^m 38 ^s	0° 28' 2"	16° 7'	8° 18'	18° 17'	25° 44'	44° 13'	1° 46'	4° 52'
20	29 ^h 49 ^m 6 ^s	0° 4' 21"	16° 11'	8° 15'	18° 49'	26° 59'	46° 17'	2° 24'	4° 21'
21	☿ 48 ^m 32 ^s	N° 19' 21"	16° 14'	8° 13'	19° 21'	28° 14'	48° 17'	2° 31'	3° 35'
22	1° 47 ^m 57 ^s	0° 43' 1"	16° 17'	8° 10'	19° 53'	29° 29'	50° 18'	2° 18'	2° 44'
23	2° 47 ^m 20 ^s	1° 6' 39"	16° 20'	8° 8'	20° 25'	30° 44'	52° 14'	2° 8'	2° 45'
24	3° 46 ^m 41 ^s	1° 30' 16"	16° 23'	8° 20'	20° 58'	32° 58'	54° 41'	1° 0'	0° 41'
25	4° 45 ^m 59 ^s	1° 53' 51"	16° 26'	8° 4' 21"	21° 30'	34° 13'	56° 22'	1° 58'	0° 52'
26	5° 45 ^m 15 ^s	2° 17' 23"	16° 29'	8° 0' 22"	22° 3'	35° 27'	58° 19'	4° 8'	1° 30'
27	6° 44 ^m 30 ^s	2° 40' 52"	16° 32'	8° 8' 0'	22° 34'	36° 42'	60° 16'	2° 21'	2° 38'
28	7° 43 ^m 43 ^s	3° 4' 18"	16° 34'	7° 59'	23° 7'	37° 56'	62° 35'	2° 51'	3° 29'
29	8° 42 ^m 54 ^s	3° 27' 42"	16° 37'	7° 17'	23° 39'	38° 11'	64° 33'	3° 34'	4° 16'
30	9° 42 ^m 3 ^s	3° 51' 0"	16° 40'	7° 58'	24° 12'	39° 25'	66° 24'	4° 37'	4° 51'
31	10° 41 ^m 10 ^s	4° 14' 15"	16° 43'	7° 57'	24° 45'	40° 29'	68° 9'	5° 13'	5° 13'

☉ enters ♈ 20d. 4h. 24m. 19f. E. T. Eq. — 7m. 40f. th. 20d 29 morn
 4h. 16m. 39f. Ap. T. ☉ mea. An. 3f. 19°. 32'. 14". 57".

APRIL. ROYAL DIARY, or EPHEMERIS. 1754. N.S.

F.M. 7d. 8h. 8'. m. L.Q. 14d. 10h. 23'. m. N.M. 22d. 2h. 50'. a.F.Q. 30d. 1h. 6'. m

D.	☉ in ♈	Decl. N.	☽ D. 15	☿ R. ☿	♂ D. 11	♀ D. 7	♂ D. 7	☽ in ♎	Lat. S.
1	11° 40' 14"	4° 37' 24"	16° 45'	7° 57'	25° 17'	11° 54'	29° 46'	21° 37'	5° 17'
2	12° 39' 16"	5° 0' 29"	16° 48'	7° 57'	25° 50'	13° 9'	0° 14' 17"	50° 41'	5° 1'
3	13° 12' 38"	5° 23' 28"	16° 50'	7° 56'	26° 23'	14° 14' 23"	0° 42'	20° 8'	4° 28'
4	14° 37' 14"	5° 46' 21"	16° 52'	7° 57'	26° 56'	15° 38'	0° 17' 59"	4° 53'	3° 35'
5	15° 36' 10"	6° 9' 10"	16° 54'	7° 57'	27° 29'	16° 52'	1° 9'	49° 51'	2° 27'
6	16° 35' 5"	6° 31' 51"	16° 56'	7° 57'	28° 12'	18° 8'	1° 12'	4° 51'	1° 10'
7	17° 33' 57"	6° 54' 26"	16° 58'	7° 58'	28° 35'	19° 23' 21"	1° 8' 10"	19° 50'	0° 12'
8	18° 32' 47"	7° 16' 53"	17° 0'	7° 58'	29° 15'	20° 35'	1° 18' 1"	4° 42'	1° 33'
9	19° 31' 35"	7° 39' 13"	17° 10'	7° 59'	29° 42'	21° 49'	0° 47'	19° 11'	2° 46'
10	20° 30' 21"	8° 1' 27"	17° 3'	8° 0'	30° 15'	23° 3'	0° 26'	3° 13'	3° 47'
11	21° 29' 5"	8° 23' 31"	17° 5'	8° 2'	30° 49'	24° 17'	0° 16'	16° 47'	4° 32'
12	22° 27' 47"	8° 45' 27"	17° 6'	8° 3'	31° 23'	25° 15' 32"	29° 23' 33"	29° 58'	5° 3'
13	23° 26' 27"	9° 7' 15"	17° 8'	8° 4'	31° 56'	26° 46'	20° 19'	12° 54'	5° 16'
14	24° 25' 5"	9° 28' 54"	17° 9'	8° 6'	32° 28'	27° 14'	0° 28'	24° 5'	5° 15'
15	25° 23' 41"	9° 50' 22"	17° 10'	8° 8'	33° 3'	29° 6'	14° 27' 45"	7° 23'	5° 2'
16	26° 22' 15"	10° 11' 42"	17° 11'	8° 11'	33° 37'	30° 28'	27° 5'	19° 23'	4° 28'
17	27° 20' 47"	10° 32' 52"	17° 12'	8° 13'	34° 11'	31° 42'	26° 15' 23"	13° 8'	3° 50'
18	28° 19' 17"	10° 53' 50"	17° 13'	8° 16'	34° 45'	32° 57'	25° 40'	12° 57'	3° 3'
19	29° 17' 45"	11° 14' 38"	17° 14'	8° 19'	35° 19'	34° 11'	24° 58'	12° 51'	2° 1'
20	30° 16' 12"	11° 35' 15"	17° 14'	8° 23'	35° 52'	35° 25'	24° 16'	6° 39'	0° 59'
21	1° 14' 37"	11° 55' 41"	17° 15'	8° 26'	36° 26'	36° 39'	23° 36'	18° 43'	0° 5'
22	2° 13' 1"	12° 15' 55"	17° 15'	8° 29'	37° 0'	37° 53'	23° 0'	0° 54'	1° 13'
23	3° 11' 23"	12° 35' 58"	17° 16'	8° 33'	37° 34'	39° 15'	22° 28'	13° 12'	2° 17'
24	4° 9' 43"	12° 55' 48"	17° 16'	8° 36'	38° 9'	40° 21'	22° 0'	25° 43'	3° 15'
25	5° 8' 0"	13° 15' 25"	17° 16'	8° 40'	38° 43'	41° 35'	21° 36'	8° 11'	4° 5'
26	6° 6' 4"	13° 34' 49"	17° 16'	8° 44'	39° 18'	42° 49'	21° 16'	21° 28'	4° 44'
27	7° 4' 17"	13° 53' 59"	17° 16'	8° 48'	39° 52'	44° 0'	21° 0'	4° 43'	5° 7'
28	8° 4' 23"	14° 12' 56"	17° 16'	8° 53'	40° 27'	45° 18'	20° 48'	18° 11'	5° 15'
29	9° 0' 58"	14° 31' 39"	17° 15'	8° 57'	41° 1'	46° 31'	20° 54'	18° 57'	5° 5'
30	9° 12' 58"	14° 50' 8"	17° 15'	9° 12'	41° 36'	47° 45'	20° 41'	15° 56'	4° 36'

D.	☉ in ♈	☽ in ♎	☿ in ♈	♂ in ♎	♀ in ♈	☽ in ♎	D. rises	D. sets	South
sec.	D. inc.	☉ flow.	☽ Rise M	☿ Sets M	♂ Sets M	♀ Sets A	☽ Sets A	☽ Sets A	
1	5h 33'	12° 54'	3h 33'	0° N 27'	0° N 56'	1° N 48'	1° S 16'	2° N 59'	3° 3' 17"
2	6 28'	5 10'	3m 59'	2h M 33'	3h M 45'	1h M 23'	6h A 21'	8h A 19'	5 4 21
3	5 24'	13 14'	3 20'	0 27'	0 55'	1 46'	1 10'	3 11'	7 Rises
4	6 37'	5 30'	2 30'	2 16'	3 27'	1 18'	6 39'	8 8'	9 9 a 45
5	5 14'	13 33'	3 6'	0 26'	0 55'	1 45'	1 2'	2 47'	11 11 50
6	6 47'	5 45'	1 3'	1 58'	3 9'	1 11'	6 56'	7 40'	13 0 41
7	5 4'	13 52'	2 54'	0 26'	0 54'	1 43'	0 53'	2 3'	15 2 0
8	6 57'	6 8'	2 fa 15'	1 40'	2 51'	1 5'	7 14'	6 0'	17 2 55
9	4 55'	14 12'	2 40'	0 26'	0 54'	1 41'	0 43'	0 28'	19 3 42
10	7 6'	6 28'	1 24'	1 22'	2 33'	0 57'	7 31'	Rises.	21 4 28
11	4 5'	14 30'	2 23'	0 26'	0 54'	1 39'	0 32'	0 3 56'	23 8 a 14
12	6 4'	2 22'	1 3'	2 15'	0 50'	7 48'	4 m 29'	27 Morn.	25 10 18
13	19d. 17h. 20m. 29f.	E. T. Eq. + 1m. 8s. th.	19d. 17h. 20m. 29f.	E. T. Eq. + 1m. 8s. th.	19d. 17h. 20m. 29f.	E. T. Eq. + 1m. 8s. th.	19d. 17h. 20m. 29f.	E. T. Eq. + 1m. 8s. th.	27 0 46
14	p. T. ☉ mea. An. 9s. 19° 38' 12". 15'''.								5 59

MAY. ROYAL DIARY, or EPHEMERIS. 1754 N.S

F. M. 6d. 5h. 19m. a. L. Q. 14d. 3h. 23'. m. N. M. 22d. 4h. 36'. m. F. Q. 29d. 6h. 40'. m

	☉ in	Decl. N.	h R	h D. Q.	h D.	h D.	h D.	h D.	h D.	Lat. S
1	10 ^Δ 57 4"	15 ^o 8' 22"	17 ^o 15	9 ^o 7	12 [*] 10	18 ^o 59	20 ^o 45	0 ^o 8'	3 ^o 50	
2	11 ¹⁹ 55 9	15 26 22	17 ^Δ 14	9 12	12 ²¹ 45	20 ^Δ 13	20 52	14 34	2 5'	
3	12 53 12	15 44 7	17 ^Δ 14	9 [*] 17	13 20	21 ¹⁰ 27	21 5	19 9	2 3'	
4	13 51 13	16 1 34	17 [□] 13	9 ¹⁷ 22	13 [□] 54	22 40	21 8 22	13 ^Δ 50	0 10'	
5	14 49 13	16 18 47	17 ⁶ 12	9 [□] 27	14 ^o 29	23 54	21 ¹³ 44	28 27	1 N	
6	15 ⁸ 47 11	16 35 43	17 [*] 11	9 ¹⁸ 33	15 ^Δ 4	25 ⁸ 8	22 1	12 ^m 55	2 1'	
7	16 ⁵ 45 8	16 52 23	17 ⁷ 10	9 ^Δ 39	15 ⁴ 39	26 ²³ 22	22 3'	27 14	3 2'	
8	17 43 3	17 8 47	17 9	9 ²¹ 45	16 14	27 36	23 ^Δ 12	11 ^Δ 16	4 12	
9	18 40 56	17 24 53	17 8	9 51	16 49	28 50	23 ²² 52	4 51	4 48	
10	19 ^Δ 38 48	17 40 42	17 ⁶ 7	9 57	17 ⁸ 24	0 ^{II} 4	24 34	8 ¹⁵ 4	5 8	
11	20 ²³ 36 39	17 56 12	17 ¹⁷ 5	10 3	17 ¹⁸ 59	1 ^Δ 17	25 [□] 20	20 52	5 11	
12	21 34 28	18 11 26	17 4	10 ⁸ 9	18 34	2 ²² 31	26 ⁹ 10	3 ^Δ 21	4 58	
13	22 [□] 32 16	18 26 21	17 3	10 ¹¹ 16	19 9	3 45	27 3	15 32	4 34	
14	23 ¹⁵ 30 2	18 40 57	17 1	10 22	19 44	4 [□] 58	27 [*] 50	27 31	3 56	
15	24 27 47	18 55 15	17 [*] 0	10 29	20 ^Δ 19	6 ¹⁷ 12	28 ¹ 58	9 ^Δ 21	3 4	
16	25 [*] 25 31	19 9 14	16 ¹⁵ 58	10 36	20 ²³ 54	7 26	0 ⁸ 1	21 10	2 15	
17	26 ⁹ 23 13	19 22 53	16 56	10 ^Δ 43	21 30	8 [*] 39	1 7	3 ⁷ 2	1 1'	
18	27 20 54	19 36 13	16 [□] 54	10 ¹⁶ 51	22 [□] 5	9 ¹³ 53	2 16	14 58	0 11	
19	28 18 33	19 49 12	16 ⁴ 52	10 58	22 ¹³ 40	11 7	3 ⁶ 27	27 4	0 S 54	
20	29 16 11	20 1 52	16 ^Δ 50	11 [□] 6	23 15	12 20	4 ¹⁴ 40	9 ⁸ 24	1 58	
21	1 ^Δ 13 48	20 14 11	16 ¹³ 47	11 ³ 14	23 [*] 50	13 34	5 55	22 1	2 58	
22	1 ¹⁷ 11 24	20 26 9	16 45	11 [*] 22	24 ³ 26	14 ^Δ 47	7 13	4 ^{II} 53	3 49	
23	2 8 58	20 37 48	16 42	11 ¹² 30	25 1	16 ²⁰ 1	8 34	17 56	4 30	
24	3 6 31	20 49 3	16 40	11 38	25 26	17 14	9 [*] 59	1 ^Δ 23	4 57	
25	4 4 3	21 59 58	16 ⁸ 37	11 47	26 ^Δ 12	18 28	11 ¹⁷ 26	15 0	5 7	
26	5 [*] 1 34	21 10 32	16 ³ 34	11 ⁶ 55	26 ²⁰ 48	19 41	12 56	28 46	5 0	
27	5 ¹⁴ 59 4	21 20 43	16 31	12 ²³ 3	27 24	20 [*] 55	14 [□] 29	12 ^Δ 40	4 34	
28	6 [□] 56 32	21 30 32	16 28	12 12	27 59	22 ¹⁵ 8	16 ³ 4	26 41	3 54	
29	7 ¹⁹ 53 59	21 40 0	16 ^Δ 25	12 20	28 35	23 [□] 22	17 ^Δ 41	10 ^{II} 49	2 57	
30	8 51 26	21 49 5	16 ⁹ 22	12 29	29 [*] 11	24 ²³ 35	19 ¹³ 20	25 4	1 50	
31	9 ^Δ 48 52	21 57 47	16 [□] 19	12 [*] 38	29 ⁷ 46	25 49	21 2	2 ^Δ 22	0 36	

D.	☉ ri.	len. D.	D. br.	Lat. N.	Lat. N.	Lat. N.	Lat. S.	Lat. S.	D.	☉ rise	☉
	fets	D. in.	☉	fets M.	fets M.	fets M.	fets M.	fets M.		& fets.	South.
1	4 ^h 37	14 ^h 47	2 ^h 6'	0 ^o N 26	0 ^o N 53	1 ^o N 37	0 ^o S 20	2 ^o S 3	1	1m 58	7 a 47
	7 24	7 3	3' 8"	ohm 44	1hm 58	ohm 42	8h A 5	4hm 14	3	2 56	9 34
6	4 28	15 5	1 50	0 25	0 53	1 35	0 9	2 50	7	8 a 38	om 19
	7 33	7 21	3 40	0 25	1. 40	0 32	8 21	4 9	9	10 35	2 12
11	4 20	15 21	1 28	0 25	0 52	1 34	0 N 3	3 2	11	12 0	3 57
	7 41	7 37	3 58	0 5	1 21	0 22	8 36	3 50	13	om 34	5 35
16	4 12	15 36	1 4	0 25	0 52	1 32	0 15	3 19	15	1 27	7 2
	7 49	7 52	4 2	11 A 42	1 3	0 13	8 52	3 40	19	2 59	9 54
21	4 5	15 50	0 24	0 25	0 52	1 30	0 27	3 6	21	3 59	11 29
	7 55	8 6	3 51	11 21	0 45	11 A. 59	9 7	3 12	23	9 a 10	1 a 12
26	3 59	16 3	no Ni.	0 24	0 52	1 28	0 39	2 37	25	10 4	
	8 2	8 10	1 27	11 2	0 26	11 48	9 10	3 21	27	Mor	

☉ enters 11 20d 18h 15m 21 E. T. Eq. + 3m 52s th. 20d 18h 19m 13s Ap. T. ☉ mea. Anom. 10s 20° 13' 39" 11".

M. 5d. 2h. 46'. m. L. Q. 13d. 8h. 44'. n. N. M. 20d. 3h. 24'. a. F. Q. 27d. 11h. 14'. m.

	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	Lat. N.	
1	100	46	18	22	6	6	16	16	12	46	0	22	27	Δ	2	12	45	23	35						1° 53	
2	11	43	42	22	14		16*	12	12	□	55	0	12	58	28	6	15	24	31	7	11	50			2° 53	
3	12	41	5	23	21	36	16	14	9	13	9	4	1	Δ	34	29	29	26	8	20	21	56			2° 58	
4	13	8	38	27	23	28	46	16	6	13	Δ	14	2	17	9	0	22	42	28	9	12	5	51		3° 53	
5	14	15	34	48	22	35	32	16	2	13	13	23	2	45	1	55	0	11	6	19	31			4° 31		
6	15	33	9	22	41	54	15	59	13	33	3	21	3	8	5	2	3	3	19	6				4° 56		
7	16	30	30	22	47	53	15	55	13	42	3	57	4	5	22	4	2	16	6					5° 3		
8	17	27	50	22	53	28	15	52	13	52	4	8	33	5	35	6	Δ	3	28	43				4° 54		
9	18	Δ	25	8	22	58	39	15	48	14	8	2	5	12	9	6	48	8	17	5	12	15		4° 33		
10	19	15	22	25	23	3	26	15	45	14	18	12	5	45	8	1	10	9	23	30				3° 58		
11	20	19	41	23	7	43	15	41	14	22	6	21	9	Δ	15	12	□	16	5	30				3° 14		
12	21	□	16	56	23	11	46	15	37	14	33	6	57	10	28	14	17	24	17	22				2° 21		
13	22	9	14	12	23	15	20	15	34	14	43	7	Δ	33	11	41	16	35	29	9				1° 23		
14	23	11	27	23	18	25	15	□	30	14	Δ	54	8	18	5	12	□	54	18	*	44	11	9	0	2° 21	
15	24	*	8	43	23	21	11	15	9	26	15	8	4	8	45	14	7	20	19	55	23			0	5	42
16	25	1	5	58	23	23	33	15	Δ	22	15	14	9	□	22	15	*	20	23	6	58	7			1° 44	
17	26	3	12	23	25	27	15	19	18	15	□	44	9	9	58	16	22	34	25	18	17	35			2° 43	
18	27	0	25	23	26	57	15	14	15	35	10	*	34	17	47	27	3	17	□	11	23			3° 35		
19	27	57	38	23	28	4	15	10	15	*45	11	20	10	17	0	29	41	13	33	4				4° 18		
20	28	6	54	23	28	14	15	6	15	4	11	46	20	73	1	8	52	27	4					4° 4		
21	29	5	52	23	29	0	15	8	2	16	6	12	23	21	6	4	10	25	52					5° 0		
22	30	49	12	23	23	51	14	7	58	16	17	12	59	22	10	46	6	12	24	55				4° 54		
23	1	46	25	23	28	18	14	43	16	28	1	6	36	23	53	8	10	20	9	5				4° 32		
24	2	*	43	27	28	27	14	49	16	12	98	14	8	12	25	6	10	26	23	25				3° 52		
25	3	13	40	48	23	25	55	14	Δ	45	16	49	14	45	26	19	12	*	30	7	12	41			2° 58	
26	4	□	38	0	23	24	7	14	12	41	17	0	15	25	27	*34	14	10	32	21	50			1° 53		
27	5	23	35	12	23	21	52	14	□	36	17	*18	16	*	1	28	11	45	16	□	32	6	Δ	0	41	51
28	6	32	22	23	19	17	14	14	32	17	20	25	16	18	38	29	□	57	18	21	30	20	4	0	N	35
29	7	Δ	29	33	23	16	16	14	*28	17	34	17	14	1	19	10	20	Δ	28	4	11	5			1° 44	
30	8	6	26	44	23	12	49	14	18	23	17	□	46	17	□	51	2	Δ	23	23	9	24	17	57	2	49

D. sets		D. in.		D. br.		Lat. N.		Lat. N.		Lat. N.		Lat. N.		Lat. S.		D. sets		D. South.	
apt.		fast.		Rife A.		sets A.		sets A.		sets A.		rife M.							
1	53	16	15	all tw.	0	N 24	0	N 51	1	N 25	0	N 52	1	S 46	1	11	55	9	11
2	8	8	31	2 43	10	h 34	11	h 59	11	h 32	9	h 30	3	m 16	3	3	0	11	0
6	48	16	24	twi-li.	0	24	0	51	1	23	1	3	0	56	7	9	57	1	45
8	12	8	40	1 54	10	13	11	40	11	20	9	36	3	16	9	11	1	3	24
11	45	16	30	twi-li.	0	23	0	51	1	21	1	12	0	0	11	11	51	4	54
8	15	8	46	0 57	10	51	11	20	11	7	9	41	3	20	13	0	14	6	19
16	43	16	34	tw-li.	0	23	0	51	1	19	1	20	0	N 50	15	0	57	7	44
8	17	8	50	0 flo. ?	9	29	11	2	10	52	9	43	6	18	17	1	52	9	11
21	34	16	35	twi-li.	0	23	0	50	1	17	1	27	1	25	19	3	5	10	51
8	17	8	51	1 7	9	8	10	44	10	39	9	44		Sets.	21	8	40	0	4
16	43	16	34	twi-li.	0	23	0	50	1	15	1	32	1	50	23	9	59	2	3
8	17	8	51	1 7	9	46	10	25	10	25	9	44	0	A 6	24	12	0	4	2
27	12	27	12	27	8	42	10	25	10	25	9	44	0	A 6	27	12	56	6	
24	0	24	0	24	8	42	10	25	10	25	9	44	0	A 6	24	0	25	7	5

JULY. ROYAL DIARY, or EPHEMERIS. 1754. N. S.

F.M. 4d. 1h. 16' a. L.Q. 12d. 1h. 59' m. N.M. 1ed. 12h. 10' n. F.Q. 26d. 7h. r.

D.	M.	In.	Sec.	Decl. N.	h R 13	Δ R 13	δ D S 1	♀ D S 1	♂ D S 1	♂ D S 1	In	P.	Lar. N.
1	0	23'	54"	23° 8' 58"	14 ^a 19'	17° 57'	18° 28'	3° Δ 36	24° 19'	1° 38'	3° 43'		
2	10	21	5	23 4 44	14 14	18 Δ 8	19 Δ 5	4 4 49	26 11	15 11	4 24		
3	11	18	16	23 0 4	14 10	18 5 20	19 7 42	6 1 28	1 28	1 28	33 4		50
4	12	8	15	22 55 1	14 6 6	18 32 20	18 7	14 29	148	11 39	4 59		
5	13	12	38	22 49 34	14 5 1	18 44 20	55 8	27 18	34 24	32 4	54		
6	14	9	45	22 43 43	13 57	18 8 56	21 32	9 8 40	3 17	7 9	4 33		
7	15	7	C	22 37 20	13 52	19 3 8	22 8 5	10 5 52	4 59	19 27	4 C		
8	16	4	12	22 30 50	13 48	19 20 22	8 46	12 5 6	6 39	1 33	3 17		
9	17	Δ	1 24	22 23 49	13 * 43	19 32 23	23 13	18 8 16	13 29	2 26			
10	17	8	58	22 16 25	13 30	19 44 23	55 14	31 9 51	25 20	1 28			
11	18	55	48	22 8 39	13 □ 34	19 56 24	36 15	Δ 43	11 Δ 24	7 7	0 27		
12	19	□	53	C 22 0 27	13 13 30	20 Δ 8	25 Δ 13	16 12 56	12 10 55	18 57	0 35		
13	20	5	10	22 51 54	13 26	20 2 20	25 13 50	18 8 14	24 0 57	1 36			
14	21	* 47	27	21 42 58	13 Δ 1	20 □ 32	26 27	19 □ 21	15 □ 54	13 10	2 34		
15	22	18	44	21 33 40	13 ° 17	20 14 44	27 □ 4	20 13 34	17 6 18	25 40	3 27		
16	23	41	57	21 24 0	13 13	20 * 56	27 3 42	21 46	18 * 41	8 11 36	4 11		
17	24	39	12	21 19 59	13 8	21 23 8	28 * 10	22 * 59	20 21 2	21 45	4 42		
18	25	36	28	21 3 35	13 8 4	21 21 28	12 56	24 2 11	21 21	5 33	4 59		
19	26	6	33	20 52 50	13 13	0 21 33	29 33	25 23	22 38	19 40	4 58		
20	27	12	31	20 41 44	12 55	21 46	0 11 33	26 35	23 52	4 8	4 37		
21	28	28	18	20 30 17	12 51	21 6 58	0 6 48	27 6 48	25 6 48	18 48	3 59		
22	29	25	36	20 18 30	12 Δ 47	22 5 10	1 21 25	20 16 6	26 11 13	3 25	3 4		
23	Ω *	22 55	20 6 23	12 15 43	22 23	2 2	0 11 12	27 21 18	2 58				
24	1 22	20 15	19 53 54	12 □ 39	22 35	2 40	1 24 28	26 2 Δ 30	0 45				
25	2	17 36	19 41 6	12 17 36	22 * 48	3 17	2 36	20 * 28	16 49	0 N 30			
26	3	□ 14	19 27 57	12 * 31	23 10	0 3 * 54	3 * 49	0 23 27	0 11 52	1 43			
27	4	Δ 12	19 14 30	12 28 22	13 6	3 5	5 6 1	1 11 23	14 46	2 49			
28	5	Δ 9	19 0 44	12 24 23	13 26	5 □ 6	6 □ 13	2 16 28	22 3	43			
29	6	13 7	6 18 46	12 21 23	Δ 38	5 13 47	7 25 25	3 7 6	11 48	4 25			
30	7	4 31	18 32 15	12 17 23	23 51	6 Δ 24	8 37	3 Δ 53	25 1	4 52			
31	8	. 1 56	18 17 33	12 6 13	24 4	7 22 2	9 Δ 49	4 18 35	8 10 0	5 1			

D. yrs.	sets appt.	len. D. D. de.	D. br. flow.	Lat. N. Rife A.	Lat. N. Sets A.	Lat. N. Sets A.	Lat. N. Sets A.	Lat. N. Sets A.	D. rises & sets.	D South.
1	3 4 5 8 25	16 30 0 53	Twili 3 12	0°N 22' 8°A 24'	0°N 50' 10°A 6'	1°N 14' 10°A 21'	1°N 36' 9°A 40'	1°N 53' 9°A 17'	1 1m 33 6 3 5 11 29 8 a 25 om a 2	9 a 4 11 29 om a 2
6	3 48 8 12	16 24 0 11 4	twil. 7	0 21 2 0	0 50 9 48	1 11 9 57	1 37 9 34	1 39 9 18	7 9 25 1 58 9 10 13 3 28	1 58 3 28
11	3 52 8 8	16 16 0 19 4	twil. 5 1	0 21 Sets.	0 50 9 30	1 5 9 42	1 38 9 27	1 12 9 14	11 10 57 4 52 13 11 46 6 17	4 52 6 17
16	3 57 8 3	16 6 0 31 5	twil. 5 27	0 21 3 M 10	0 50 9 12	1 7 9 27	1 40 9 20	0 33 9 5	15 om 18 7 51 17 1 42 9 34 19 Sets. 11 26	7 51 9 34 11 26
21	4 3 7 56	15 54 0 41 5	twil. 48	0 20 2 49	0 50 8 54	1 4 9 22	1 33 9 12	0 S 15 8 54	21 8 a 28 1 a 2 23 9 20 25 10 27 11	1 a 2 25 10 27 11
26	4 6 7 50	15 40 0 55 5	5 57	0 20 2 28	0 50 8 37	1 2 8 50	1 27 9 2	1 10 8 38		

☉ enters ♈ 22d. 14h. 24m. 17s. E: T. Eq. — 5^m 53^s th. 29
 12^d 14^h 18^m 24^s Ap. T. ☉ mea. Anom. 0° 22° 9' 44" 27". 31

AUGUST. ROYAL DIARY, or EPHEMERIS. 1754 N.S.

T. 2d. 1h. 48'. m. L. Q. 11d. 6h. 9'. m. N. M. 18d. 8h. 10'. m. F. Q. 24d. 11h. 18'. m.

♂ in SL	Decl. N.	h.R.	h.D.	♂ D.	♀ D.	♂ D.	♂ in	Lat. N.
8 59 22	18° 2' 33	12° 10'	24° 17'	7° 40'	11° 1'	5° 15	20° 4'	4° 58
9 56 49	17 47 16	12 6	24 30	8 17	12 13	5 52	3 21	4 38
10 54 17	17 31 41	12 2	24 8 43	8 55	13 25	6 24	15 41	4 1
11 51 47	17 15 48	11 59	24 18 56	9 33	14 37	6 51	27 51	3 21
12 49 18	16 59 35	11 * 55	25 9	10 8 11	15 8 49	7 19 13	9 * 51	2 33
13 46 50	16 43 14	11 + 52	25 22	10 1 48	17 13 1	7 32 21	21 43	1 36
14 44 23	16 26 32	11 0 48	25 35	11 26 18	12 12	7 48 3	3 19 1	0 34
15 41 57	16 9 34	11 17 45	25 48	12 4	19 24	7 54 15	15 19	0 28
16 39 32	15 52 20	11 41	26 22 1	12 42	20 36	7 57 27	8	1 29
17 37 9	15 34 51	11 38	26 14	13 20	21 47	7 22 56	9 8 5	2 30
18 34 47	15 17 8	11 5 34	26 27	13 9 58	22 59	7 R. 48	21 17	3 23
19 32 6	14 59 8	11 31	26 10 40	14 36	24 10	7 34 3	3 45	4 8
20 * 30	14 40 56	11 28	26 * 53	15 21 14	25 21	7 16 16	16 42	4 42
21 27 48	14 22 26	11 8 25	27 19 6	15 52	26 17 33	6 * 51	0 25 2	5 3
22 25 31	14 3 48	11 20 22	27 19	16 * 30	27 45	6 11 21	13 47	5 6
23 23 16	13 44 53	11 19	27 33	17 5 8	28 * 56	5 47 28	1	4 52
24 21 2	13 25 45	11 17	27 46	17 47	0 2 7	5 7 12	Ω 39	4 19
25 20 18	13 6 24	11 14	27 6 59	18 25	1 19	4 6 23	27 39	3 25
26 16 39	12 46 52	11 22 10	28 1 12	18 6 3	2 30	3 10 35	12 36	2 19
27 14 29	12 27 7	11 10 28	28 25	19 11 41	3 6 41	2 44 27	34	1 2
28 12 19	12 7 10	11 22 8	28 38	20 20	4 10 52	1 51 12	28	0 N 18
29 * 10 11	11 47 2	11 6	28 * 51	20 58	6 3	0 * 57	27 2	1 35
30 4 8	11 26 42	11 * 4	29 3	4 21 * 36	7 14	0 6 2	11 16	2 45
1 6 2	11 6 11	11 0	2 29 17	22 19 15	8 25	29 8 25	10	3 44
2 11 4	10 45 30	11 0	29 7 30	22 53	9 * 36	28 7 16	8 42	4 28
3 2 2	10 24 38	10 58	29 43	23 30 32	10 2 47	27 29 21	57	4 58
4 22 0	10 3 36	10 6 56	29 15 56	24 3 10	11 0 58	26 10 46	4 58	5 10
4 58 7	9 42 24	10 11 54	0 29	24 49	13 15 8	26 9 9	17 39	5 8
5 56 12	9 21 3	10 52	0 22	25 15 27	14 19	25 36	0 55	4 51
6 54 18	8 59 33	10 51	0 35	26 6	15 29	25 11	12 29	4 20
7 52 25	8 37 56	10 49	0 48	26 45	16 7 40	24 8 51	34 37	3 38

☉ ft.	ten. D.	☉	☿	♈	♉	♊	♋	♌	♍	☽	☽ rises & fets.	☽ South.		
apt.	D. dec	flow.	Sets M.	Sets A.	fets. A.	Sets A.	Sets A.	Sets A.	Sets A.					
18	15 22	1 24	0°N 19	0°N 50	0°N 59	1°N 17	2°S 21	1	2	11	2	2		
7 41	1 13	5 43	2 21	8 16	8 42	8 50	8 16	3	1	3	1	2		
16	15 6	1 44	0 19	0 51	0 57	1 8	3 20	7	9	2	2	48		
7 33	1 26	5 22	1 42	7 59	8 28	8 40	7 54	9	9	50	4	13		
35	14 46	2 2	0 18	0 51	0 55	0 56	4 10	11	10	52	5	53		
7 24	1 46	4 43	1 21	7 42	8 14	8 30	7 31	13	13	Morn.	7	22		
44	14 32	2 20	0 17	0 51	0 53	0 43	4 38	15	1	15	9	15		
7 15	2 3	3 51	1 1	7 25	8 1	8 20	7 4	17	3	34	11	6		
53	14 13	2 35	0 17	0 51	0 50	0 28	4 29	19	7	31	1	0		
7 6	2 22	2 43	0 41	6 51	7 47	8 8	6 23	21	8	33	2	51		
5	13 55	2 50	0 16	0 52	0 48	0 12	3 33	23	9	39	4	40		
5 57	2 40	1 27	0 22	rises.	7 33	7 58		25	11	1	6	30		
										27	Morn.	8	15	
waters NR 22d. 20h. 37m. 57f. E. T. Eq. — 2m. 16s. th. 22d.										29	1	47	9	53
35m. 41f. Ap. T. mea. An. 1s. 22°. 58.' 13". 44'''.										31	3	54	11	2

F.M. 1d. 4h. 51m. a. L.Q. 9d. 8h. 47'. n. N.M. 16d. 4h. 23m. a. F.Q. 23d. 9h. 26'. m.

D.	☉ in ♍	Decl. N.	♂ R. 15	♂ D. 12	♂ D. 12	♂ R. 15	♂ R. 15	♂ in ♍	Lat. N.
1	8° 50' 34"	8° 16' 9"	10° 48'	1° 1'	27° 24'	17° 50'	24° 43'	6° 37'	2° 47'
2	9° 48' 45"	7° 54' 15"	10° 46'	1° 14'	28° 8'	19° 0'	24° 43'	18° 28'	1° 49'
3	10° 46' 58"	7° 32' 12"	10° 45'	1° 27'	28° 22'	20° 10'	24° 51'	0° 17'	0° 46'
4	11° 45' 13"	7° 10' 20"	10° 44'	1° 40'	29° 20'	21° 8'	25° 9'	12° 4'	0° 18'
5	12° 43' 30"	6° 47' 45"	10° 43'	1° 53'	29° 59'	22° 31'	25° 43'	23° 50'	1° 22'
6	13° 41' 50"	6° 25' 21"	10° 42'	2° 6'	30° 38'	23° 41'	26° 10'	5° 43'	2° 22'
7	14° 40' 11"	6° 2' 51"	10° 42'	2° 19'	31° 17'	24° 51'	26° 53'	17° 43'	3° 18'
8	15° 38' 33"	5° 40' 14"	10° 41'	2° 32'	31° 56'	26° 11'	27° 19'	29° 54'	4° 5'
9	16° 36' 57"	5° 17' 32"	10° 41'	2° 45'	32° 35'	27° 11'	28° 43'	12° 20'	4° 42'
10	17° 35' 23"	4° 54' 46"	10° 40'	2° 58'	33° 14'	28° 21'	29° 46'	25° 6'	5° 6'
11	18° 33' 51"	4° 31' 54"	10° 40'	3° 15'	33° 53'	29° 6'	30° 19'	8° 19'	5° 15'
12	19° 32' 21"	4° 8' 56"	10° 39'	3° 23'	34° 32'	30° 40'	30° 22'	0° 5'	5° 7'
13	20° 30' 53"	3° 45' 53"	10° 39'	3° 36'	35° 12'	31° 49'	31° 44'	6° 10'	4° 40'
14	21° 29' 26"	3° 22' 49"	10° 39'	3° 49'	35° 51'	32° 59'	32° 13'	20° 47'	3° 54'
15	22° 28' 1"	2° 59' 40"	10° 39'	4° 1'	36° 30'	33° 19'	33° 46'	5° 43'	2° 51'
16	23° 26' 38"	2° 36' 27"	10° 39'	4° 14'	37° 9'	34° 18'	34° 23'	20° 54'	1° 36'
17	24° 25' 18"	2° 13' 12"	10° 39'	4° 27'	37° 48'	35° 10'	35° 10'	6° 10'	0° 13'
18	25° 24' 0"	1° 49' 53"	10° 39'	4° 39'	38° 28'	36° 27'	36° 11'	45° 21'	1° 9'
19	26° 22' 43"	1° 26' 32"	10° 40'	4° 52'	39° 7'	37° 46'	37° 29'	6° 9'	2° 26'
20	27° 21' 29"	1° 3' 8"	10° 40'	5° 4'	39° 47'	38° 55'	38° 15'	20° 38'	3° 32'
21	28° 20' 17"	0° 39' 44"	10° 41'	5° 17'	40° 27'	39° 47'	39° 3'	4° 45'	4° 23'
22	29° 19' 7"	0° 16' 18"	10° 42'	5° 29'	41° 6'	40° 12'	40° 18'	5° 18'	4° 57'
23	30° 18' 59"	0° 7' 10"	10° 43'	5° 41'	41° 46'	41° 33'	41° 40'	10° 40'	5° 15'
24	31° 18' 53"	0° 30' 38"	10° 44'	5° 54'	42° 26'	42° 20'	42° 20'	14° 33'	5° 15'
25	32° 18' 48"	0° 54' 6"	10° 45'	6° 7'	43° 5'	43° 39'	43° 18'	27° 7'	5° 1'
26	33° 18' 46"	1° 17' 34"	10° 46'	6° 19'	43° 45'	44° 47'	44° 8'	9° 24'	4° 32'
27	34° 18' 46"	1° 41' 21"	10° 47'	6° 31'	44° 19'	45° 55'	45° 27'	21° 32'	3° 52'
28	35° 18' 48"	2° 4' 30"	10° 48'	6° 43'	44° 51'	46° 29'	46° 46'	33° 35'	3° 1'
29	36° 18' 52"	2° 27' 56"	10° 49'	6° 55'	45° 14'	47° 14'	47° 11'	34° 15'	2° 4'
30	37° 18' 58"	2° 51' 22"	10° 51'	7° 7'	45° 16'	48° 10'	48° 31'	27° 18'	1° 2'

D.	☉ in ♍	len. D	D. br.	Lat. N.	Lat. N.	Lat. N.	Lat. S.	Lat. S.	☉ rises	South
sets	apt.	D. de.	fast.	Sets A.	Rise M.	Sets A.	Sets A.	Rise M.	& sets.	Morn.
1	5h 14'	13h 32'	3h 7'	0° N 16'	0° N 52'	0° N 45'	0° S 9'	1° S 47'	3° 7' 13"	0° 53'
6	6 45'	3 3'	0' 20"	11h 45'	3h M 30'	7h A 17'	7h A 46'	4h M 4'	5° 8' 2"	2° 17'
11	5 23'	13 13'	3 21'	0° 15'	0° 52'	0° 43'	0° 28'	0° 16'	7° 9' 0"	3° 45'
16	6 36'	3 22'	1 56'	11 36'	4 18'	7 5'	7 37'	3 48'	9° 10' 22"	5° 22'
21	5 33'	12 53'	3 34'	0° 15'	0° 53'	0° 40'	0° 47'	0° N 54'	11° 1' 20"	7° 6'
26	6 26'	3 42'	3 37'	11 18'	4 7'	6 52'	7 27'	3 52'	13° 1' 20"	8° 57'
31	5 43'	12 34'	3 45'	0° 14'	0° 53'	0° 37'	1° 8'	1° 36'	15° 3' 63"	10° 51'
36	6 16'	4 1'	5 21'	11 0'	3 54'	6 40'	7 18'	4 13'	17° 6' 37"	12° 45'
41	5 52'	12 14'	3 56'	0° 14'	0° 54'	0° 35'	1° 27'	1° 54'	19° 7' 44"	2° 37'
46	6 7'	4 21'	7 6'	10 42'	3 42'	6 26'	7 10'	4 42'	21° 9' 8"	4° 31'
51	6 2'	11 54'	4 7'	0° 13'	0° 54'	0° 32'	1° 46'	1° 46'	23° 10' 52"	6° 2'
56	6 57'	4 41'	8 48'	10 24'	3 30'	6 13'	7 2'	5 19'	25° 19' 27"	

☉ enters ♍ 22d. 16h. 4cm. 49f. E.T. Eq. 17^m. 41^s. th. 22d. 29 16h. 48m. 30f. Ap. T. ☉ mea Anom. 2f. 23° 21'. 47". 31".

CEMBER. ROYAL DIARY, or EPHEMERIS. 1754.

7d. 5h. 5m N M. 13d. 11h. 25m. F. Q. 21d. 2h. 11a F. M. 29d. 1h. 11a

☉. in	☿. Decl. S.	♂ D. 1/2	♂ D. 1/2	♂ D. 1/2	♀ D. 1/2	♀ D. 1/2	☽ in 1/2	Lat. S.
9° 17' 39"	21° 53' 6"	15° 7'	16° 59'	29° 7'	22° 44'	25° 21'	28° 8'	5° 0'
0 18 35	22 2 8	15 13	17 * 5	29 49	23 8 25	24 58	11 25 11	5 2
1 19 32	22 10 45	15 7 20	17 11 11	0 Δ 32	24 23	24 24	24 24	4 47
2 Δ 20	22 18 56	15 26	17 16	1 11 15	24 34	23 38	7 Ω 52	4 12
3 9 21	22 26 41	15 32	17 21	1 □ 58	25 23	22 Δ 42	21 28	3 32
4 □ 22	22 34 0	15 Δ 39	17 26	2 19 41	25 58	21 36	5 21 7	2 34
5 17 23	22 40 51	15 18 45	17 31	3 24 26	Δ 33	20 □ 26	19 22	1 26
6 24 31	22 47 17	15 □ 42	17 36	4 * 7 27	1 37	19 10	3 1 19	0 11
7 * 25 33	22 53 15	15 22 58	17 41	4 3 50	27 □ 39	17 * 48	17 31	1 N 2
8 26 36	22 58 47	16 5	17 46	5 33	28 17 9	16 21	2 11 C	2 24
9 27 40	23 3 51	16 * 11	17 * 50	6 16	28 * 38	14 57	16 25	3 17
10 28 44	23 8 27	16 18	17 54	7 6 0	29 23 3	13 6 41	0 2 58	4 2
11 6 29 45	23 12 36	16 25	17 □ 58	7 11 43	29 30	12 20 34	15 20	4 43
12 11 30 55	23 16 18	16 31	18 4	8 26	29 53	11 37	29 24	4 59
13 32 22	23 19 30	16 38	18 Δ 5	9 9 0	30 15	10 47	13 2 15	4 57
14 33 9 23	22 14	16 45	18 8	9 53	0 6 35	10 7	16 43	4 38
15 34 17 23	24 33	16 52	18 12	10 * 36	0 7 55	9 40	9 46	4 6
16 * 35 25 23	26 21	16 59	18 15	11 2 20	1 11 9	23 22	24 3	3 22
17 9 36 33	27 43	17 5	18 18	12 □ 3	1 25 9	* 17 4	4 46	2 29
18 37 42 23	28 34	17 * 12	18 21	12 15 47	1 36	D. 9 21	16 48	1 31
19 □ 38 51	23 28 58	17 19	18 23	13 31	1 * 45	9 Δ 33	28 41	0 29
20 2 40 23	28 54	17 □ 26	18 26	14 Δ 14	1 52	9 23 54	10 3 30	0 S 33
1 Δ 41 10	23 28 22	17 15 32	18 28	14 8 58	1 □ 56	10 22	22 19	1 34
2 1 42 20	23 27 20	17 39	18 30	15 42	1 19 59	10 57	4 8 12	2 31
3 43 31	23 25 51	17 Δ 46	18 Δ 32	16 26	1 R 59	11 38	16 16	3 22
4 44 42	23 23 54	17 3 53	18 4 33	17 8 10	1 Δ 56	12 24	28 34	4 9
5 45 53	23 21 24	18 0	18 □ 35	17 13 54	1 6 52	13 8 14	11 11 8	4 37
6 47 3	23 18 33	18 7	18 14 36	18 38	1 45 14	9 24	3 4	59
7 48 14	23 15 12	18 8 14	18 * 37	19 22	1 35 15	10 7	25 12	4 59
8 49 24	23 11 20	18 21	18 22 38	20 6	1 8 21	16 13	20 38	4 46
9 50 26	23 7 31	18 28	18 38 20	20 50	1 19 5	17 18	4 16	4 17

☉. in	☿. D. de.	☿. fat.	Lat. N.	Lat. N.	Lat. S.	Lat. S.	Lat. S.	☽. rise	☽. South.
7 57 38	8 6	5 54	10 N 7	10 N 6	0 S 5	2 S 45	1 S 6	1 55 55 ri.	om 58
8 38 29	10 31	5 54	6 A 27	12 A 11	7 H M	7 6 A 52	4 A 47	3 7 56	2 42
8 7 57	5 56	5 56	5 7	1 8	0 8	2 15	0 N 41	5 10 16	4 29
3 58 8	38 8	5 28	5 9	11 51	7 5	6 51	4 23	7 Morn.	6 10
3 57 50	5 58	5 58	5 6	1 9	0 12	1 38	2 12	9 2 1	7 53
2 55 8	45 6	5 12	5 49	11 31	7 3	6 47	6 9	11 4 36	9 40
8 7 46	5 5	5 5	5 6	1 11	0 15	0 51	2 58	13 Sets.	11 34
3 53 8	49 3	5 49	5 30	11 11	7 1	6 40	Rises.	15 6 a 2	1 a 27
3 8 7 44	6 1	5 1	5 6	1 12	0 18	0 N 6	2 50	17 8 11	3 10
3 52 8	50 1	5 18	5 11	10 50	6 58	6 29	6 M 19	19 10 22	4 48
3 7 7 46	6 1	5 1	5 5	1 13	0 21	1 12	2 18	21 Morn.	6
3 53 11	12 1	5 12	5 52	10 29	6 54	6 14	6 14	23 1-28	7 3
3 53 11	12 1	5 12	5 52	10 29	6 54	6 14	6 14	25 3 34	9
3 53 11	12 1	5 12	5 52	10 29	6 54	6 14	6 14	27 5 35	10 38
3 53 11	12 1	5 12	5 52	10 29	6 54	6 14	6 14	29 Rises.	Morn.
3 53 11	12 1	5 12	5 52	10 29	6 54	6 14	6 14	31 6 a 36	1 17

aters by 21d. 8h. 17m. 51f. E. 1. Eq. + 1m. 9f. th. 21d
m. o. L. Ap. T. mea. An. 5f. 21°. 43'. 22". 53'''.

The Places of the PLANETS, as they will appear, beheld from the
 SUN (call'd their *Heliocentric Places*,) for 1754, N. S.
 Being of Use for finding the Planets Places, and especially that of Venus.

January.										July.									
D.	h	m	s	δ	♀	♂	D.	h	m	s	δ	♀	♂						
1	8	23	10	13	18	11	13	19	11	13	15	15	15						
6	8	32	10	54	21	4	17	30	9	4	59	13	58						
11	8	41	11	18	23	32	5	27	0	45	14	7	25						
16	8	50	11	42	26	0	13	23	18	50	14	16	25						
21	8	59	12	5	27	27	11	19	4	15	14	25	26						
26	9	8	12	29	0	25	29	14	19	35	14	34	26						
February.										August.									
1	9	19	12	58	3	46	8	43	6	19	14	45	27						
6	9	28	13	22	6	9	16	37	20	4	14	54	27						
11	9	37	13	55	8	31	24	31	4	3	15	3	27						
16	9	46	14	9	10	53	2	25	18	44	15	12	28						
21	9	55	14	33	13	14	10	19	4	36	15	21	28						
26	10	4	14	56	15	34	18	13	22	18	15	30	29						
March.										September.									
1	10	9	15	10	16	57	22	59	4	5	15	41	29						
6	10	18	15	34	19	16	0	53	26	12	15	50	29						
11	10	27	15	58	21	33	8	49	21	55	15	59	0						
16	10	36	16	21	23	50	16	45	21	8	16	8	0						
21	10	41	16	4	26	7	24	42	22	11	16	17	1						
26	10	54	17	0	28	23	2	34	23	0	16	26	1						
April.										October.									
1	11	5	17	37	1	5	12	13	25	50	16	35	1						
6	11	14	18	1	3	19	20	20	18	54	16	44	2						
11	11	23	18	24	5	33	28	11	8	25	16	53	2						
16	11	32	18	48	7	47	6	8	11	25	17	2	3						
21	11	41	19	11	10	0	14	11	10	38	17	11	3						
26	11	50	19	34	12	13	22	12	25	40	17	20	3						
May.										November.									
1	11	59	19	58	14	26	0	11	14	9	17	31	4						
6	12	8	20	21	16	38	8	18	23	2	17	40	4						
11	12	17	20	45	18	50	16	22	7	5	17	49	5						
16	12	26	21	9	21	1	24	26	21	53	17	58	5						
21	12	35	21	32	23	13	2	28	31	8	18	7	5						
26	12	44	21	56	25	24	10	37	26	14	18	16	6						
June.										December.									
1	12	55	22	24	28	2	20	28	21	39	18	25	6						
6	13	4	24	47	0	13	28	28	16	39	18	34	6						
11	13	13	23	11	2	24	6	36	15	8	18	43	7						
16	13	22	23	34	4	35	14	43	16	11	18	52	7						
21	13	31	23	58	6	46	22	51	18	0	19	1	8						
26	13	40	24	21	8	57	0	59	15	51	19	10	8						

**ECLIPSES of JUPITER's first Satellite, 1754, N. S. ap-
parent Time, according to Dr. POND's Tables, for Greenwich Ob-
servatory.**

Immersion.	Emerfions.	Emerfions.	Emerfions.	Emerfions.
January.	February.	March.	April.	May.
D. H. M. S.	D. H. M. S.	D. H. M. S.	D. H. M. S.	D. H. M. S.
1 8 16 52	2 6 56 50	2 14 36 31	1 16 52 58	1 19 8 20
3 2 44 26	4 1 25 12	4 9 5 33	3 11 22 13	3 13 37 6
4 21 12 16	5 19 53 38	6 3 24 38	5 5 51 27	5 8 6 12
6 15 39 46	7 14 22 7	7 22 3 45	7 0 20 41	7 2 35 5
8 10 7 29	9 8 50 40	9 16 32 53	8 18 49 54	8 21 3 56
10 4 35 43	11 3 18 53	11 11 2 3	10 13 19 7	10 15 32 43
11 23 2 59	12 21 47 50	13 5 31 13	12 7 48 18	12 10 1 28
13 17 30 48	14 16 16 30	15 0 0 25	14 2 17 32	14 4 30 13
15 11 58 39	16 10 45 14	16 18 29 38	15 20 46 44	15 22 58 56
17 6 26 35	18 5 14 1	18 12 58 50	17 15 15 53	17 17 27 38
19 0 55 10	19 23 42 51	20 7 28 5	19 9 45 3	19 11 56 19
20 19 22 49	21 18 11 42	22 1 57 20	21 4 14 10	21 6 24 56
22 14 50 35	23 12 40 36	23 20 26 35	22 22 43 4	23 0 53 32
24 8 18 42	25 7 9 35	25 14 55 52	24 17 12 19	24 19 22 6
26 2 46 50	27 1 38 28	27 9 25 8	26 11 41 16	26 13 50 39
27 21 15 0	28 20 7 30	29 3 54 15	28 6 10 21	28 8 19 9
29 15 43 14		30 22 23 42	30 0 39 21	30 2 47 37
31 10 11 21				31 21 16 5
8 0 11 18 Feb.				

Emerfions.	Emerfions.	Immersion.	Immersion.	Immersion.
June.	July.	October.	November.	December.
D. H. M. S.	D. H. M. S.	D. H. M. S.	D. H. M. S.	D. H. M. S.
2 15 4 32	2 17 36 1	2 16 28 27	1 18 36 34	1 20 32 26
4 10 12 58	4 12 14 21	4 10 57 25	3 13 4 55	3 15 0 2
6 4 41 22	6 6 42 41	6 5 26 23	5 7 33 14	5 9 27 40
7 23 9 44	8 1 11 2	7 23 55 17	7 2 1 30	7 3 55 14
9 17 38 7	9 19 39 24	9 18 24 10	8 20 29 43	8 22 22 47
11 12 6 27	11 14 7 48	11 12 53 3	10 14 59 40	10 16 50 17
13 6 34 47	13 8 36 11	13 7 21 53	12 9 26 2	12 11 17 45
15 1 3 7	15 3 4 37	15 1 50 40	14 3 54 5	14 5 45 12
16 19 31 23	16 21 33 4	16 20 19 25	15 22 22 7	6 0 12 39
18 13 59 41	18 16 1 33	18 14 48 9	17 16 49 55	17 18 40 6
20 8 27 58	20 10 30 3	20 9 16 50	19 11 18 1	19 13 18 5
22 2 56 14	22 4 58 43	22 3 45 31	21 5 45 54	21 7 35 0
23 21 24 31	23 23 27 6	23 22 14 10	23 0 13 45	23 2 2 30
25 15 52 48	25 17 55 41	25 16 42 45	24 18 48 33	24 20 29 46
27 10 21 5	27 12 24 17	27 11 11 16	26 13 9 20	26 14 57 21
29 4 49 24	29 6 52 53	29 5 39 35	27 7 37 5	28 9 24 56
30 23 27 42	31 1 21 32	31 0 8 11	30 2 4 44	30 3 52 31
				31 22 19 41

Ufe. The Difference between the Apparent Time *observed at any Place*, of t
Emerfions or Immersion of this Satellite, and the apparent Time here fet dow
being converted into Degrees, will exactly fhew the Longitude, East or. We
from the Meridian of Greenwich Observatory, in 51 Deg. 28 Min. 30 Sec. Nort

ing, Southing, and Setting of several Eminent Fix'd Stars,
in Latitude of London, 51°. 32'. for 1754, N. S.

Times of Orion's Right Shoulder Southing, Setting, and Rising.

Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
South	South	South	Sets.				Rise.	Rises.	Rises.	Rises.	Rises.
h m	h m	h m	h m				h m	h m	h m	h m	h m
10 52	8 a 40	6 57	11 34	Sets			2 m 20	12 20	10 33	8 26	6 33
10 30	8 20	6 33	11 16	helio-			2 12	12 10	10 15	8 17	6 18
10 8	8 c	6 15	10 58	cally			2 42	11 44	9 56	7 57	5 49
9 47	7 41	5 56	10 39			Rises	1 23	11 26	9 38	7 36	5 27
9 25	7 22	5 38	10 21			helio-	1 4	11 8	9 19	7 18	5 9
9 4	7 3	5 20	10 2			cally.	0 46	10 51	9 0	6 54	4 43

Times of Procyon's Rising, Southing, Setting, and Rising.

Rises.	South	South	Sets.	Sets.			Rises.	Rises.	Rises.	Rises.
h m	h m	h m	h m	h m			h m	h m	h m	h m
6 a 10	10 a 24	8 a 36	1 m 14	11 20			Rises	2 m 18	12 a 27	10 a 31
5 58	10 4	8 17	0 56	11 1			helio-	2 0	12 9	10 11
5 26	9 45	7 58	0 38	10 41			cally.	1 42	11 51	9 54
5 5	9 25	7 40	0 20	10 22			3 m 17	1 25	11 32	9 30
4 42	9 6	7 22	0 10	10 2			2 59	1 7	11 13	9 9
4 22	8 47	7 4	11 39	Hel.			2 40	0 49	10 51	8 48

Times of Regulus's Rising, Southing, Setting, and Rising.

Rises.	South	South	Sets.	Sets.			Rises.	Rises.	Rises.	Rises.
h m	h m	h m	h m	h m			h m	h m	h m	h m
7 a 58	12 a 53	12 a 42	9 a 11	2 m 32	12 a 29	Sets	4 m 6	2 m 19	12 a 18	10 a 15
7 36	12 32	10 45	8 52	2 13	12 5	helio-	3 48	2 11	11 59	9 53
7 14	12 12	10 27	8 34	1 53	11 44	cally.	3 30	1 42	11 39	9 31
6 52	11 53	10 5	8 16	1 34	11 23		Rises	3 12	1 24	11 18
6 31	11 34	9 51	7 57	1 14	11 3		helio-	2 55	1 5	10 57
6 10	11 15	9 32	6 39	0 54	0 42		cally.	2 37	0 46	10 36

Times of Arctus's Rising, Southing, Setting, and Rising.

Rises.	Rises.	Rises.	South	South	Sets.	Sets.			Rises.	Rises.
h m	h m	h m	h m	h m	h m	h m			h m	h m
1 m 17	11 a 1	9 a 12	12 a 27	10 a 36	1 m 47	12 a 39	Sets.		5 m 38	3 m 34
0 55	10 40	8 53	12 9	10 17	1 27	12 19	helio-		5 18	3 12
1 33	10 21	8 35	11 51	9 57	1 6	12 58	cally.		4 58	2 51
0 11	10 1	8 17	11 32	9 38	0 45	12 38		Rises	4 37	2 29
12 a 6	9 42	9 55	11 14	9 18	0 24	12 18		helio-	4 16	2 6
11 25	9 23	7 41	10 55	8 58	0 4	12 58		cally.	3 55	1 44

Times of the Bright Star in the Vulture Rising, Southing, and Setting.

Rises.	Rises.	Rises.	Rises.	Rises.	South	South	South	South	Sets.	Sets.	Sets.
h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
5 m 10	3 m 58	2 m 9	12 a 12	10 a 21	3 m 31	1 m 0	10 a 51	8 a 55	1 m 53	12 a 53	9 a 49
5 48	3 37	1 51	11 54	10 2	2 43	0 39	10 32	8 37	1 35	11 33	9 27
5 26	3 17	1 32	11 36	9 42	2 23	0 19	10 13	8 19	1 16	11 13	9 5
5 5	2 58	1 14	11 17	9 23	2 2	12 55	9 54	8 1	0 58	10 52	8 43
4 43	2 39	0 56	10 59	9 4	1 41	11 35	9 36	7 43	0 39	10 31	8 21
4 22	2 20	0 38	10 40	8 45	1 20	11 19	9 17	7 26	0 20	10 10	7 59

Times of the South Balance Rising, Southing, Setting, and Rising.

Rises.	Rises.	Rises.	South	South	South	Sets.	Sets.			Rises.
h m	h m	h m	h m	h m	h m	h m	h m			h m
5 m 10	12 a 54	11 a 5	1 m 56	12 a 1	9 a 59	12 a 37	10 31	Sets.		5 m 27
2 48	12 34	10 46	1 38	11 42	9 39	12 15	10 12	helio-		5 5
2 26	12 14	10 28	1 19	11 23	9 18	11 54	9 53	cally.		4 42
1 54	12 10	10 1	1 11	11 3	8 57	11 34	9 34		Rises	4 21
1 35	9 52	0 42	10 43	8 36	11 14	9 16			helio-	3 59
16 9	34	0 24	10 23	8 16	10 55	8 57			cally.	3 37

THE LADIES CHRONOLOGER,

In ENGLISH,
with the Fair Sex's *French Almanac*. Ou l'*Almanac du*
BEAU SEXE.

For the Year of our Lord 1754:
ing the *Second* after *Bissextile*, or *Leap-Year*, and the *Third* of the
Gregorian Account, or *New Stile*, in *Great Britain*.
ntaining *Chronological* Tables, whereby the *Lunations*, and *Easter*
are found for ever, by *Inspection*: Also a *French* and *English*
Vocabulary, explaining the *Terms* of the said *Almanac*.
igmas, a *Lady's Oracle*, *Questions*, and *Solutions*: With a *Catalogue*
of the *Names* of the *Contributors*.

For the *Improvement* and *Delights* of the *FAIR SEX*.
Inscribed to a *Lady* of the most *Merit* in *Great Britain*.

By the late *AUTHOR* of the *LADIES DIARY*.

1. For the Sake of *Fair Truth*, this *Chronologer's* made,
Therefore buy it, *Fair Ladies*, and don't be afraid.



3. And be pleas'd to observe, if you should have a call
The Odds that appear betwixt *David* and *Saul*.

2. Your *Diarian Author* discharg'd of that *Trust*,
Hoists his *Flag* in your *Service*, for serve you he must.

4. In the Cause of *Bright Virtue* he's firmly allied,
Against all the *Vices* that e'er have been tried;
For the *Widow* he writes,—for that *Sex* he appears,
And hopes for *Success*, in the succeeding *Years*.

ΧΡΟΝΟΛΟΓΟΝΤΟΥ ΣΑΙΝ ©.

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A D D R E S S.

M A D A M,

THE following *Sheets*, for the Benefit and Improvement of useful Science, are with great Respect, inscribed, by

Your obedient and faithful humble Servant,

Χρόνου Μοροντυβρίκος.

P R E F A C E.

MEETING with unexpected, as undeserved, ill Treatment from the *Agents* of an HONOURABLE SOCIETY, after compiling the last *Eight Ladies Diaries*, (from 1744 to 1753) and encreasing the Sale of the *annual Impression*, by many Thousands, (*as the three Printers thereof can witness*) we declined writing the said Diary any longer.—However, to make our ingenious Correspondents amends for their Contributions, we have published them in this our *Ladies Chronologer*, which otherwise must have been lost to the Public: So that it will be seen, whether our *Ladies Chronologer*, or the *Ladies Diary* (as now conducted) is the more useful Production.

We made the first Offer of the Copies of the *Palladium*, and *Almanac Royal* to the Agents of the said *Honourable Society*, who refusing to print them, we were obliged to carry them to the Promoters of *Truth and Science*. Yet when these and other of our Productions began to flourish, the said Agents opposed their Success, so as to give Birth to the *Ladies Chronologer*.

The LADIES CHRONOLOGER. 3

SIX ECLIPSES for 1754, computed by Mr. Thomas Cowper of *Wellingborough*.

Four of the Sun and two of the Moon, all invisible to the Inhabitants of GREAT BRITAIN.

1. Of the Sun, Saturday the 23d of March, between 10 and 11 at Night.

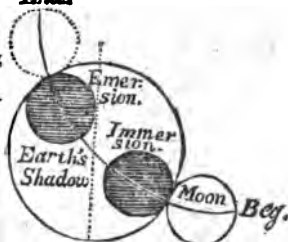
2. Of the Moon, on Sunday the 7th of April, 10 minutes after 8 in the Morning.

This Eclipse is nearly central, and visible to the greatest Part of *America*.

The Calculation and Sketch, by Mr. Cowper, for Port Royal, in *Jamaica*, is as follows.

End.

	H. M.	Morning
Beginning	- 1 14	at <i>Ja-</i>
Beg. Tot. Dark.	2 11	<i>maica ap-</i>
Middle	- 2 59	parent
End Tot. Dark.	3 47	Time.
End	- - 4 44	
Digits	21°. 47'.	



3. Of the Sun, on Monday the 22d of April, between 2 and 3 in the Afternoon.

4. Of the Sun, on Monday September the 16th, between 4 and 5 in the Afternoon.

5. Of the Moon, on Tuesday, October the 1st, at 10 in the Forenoon.

The Time and Manner of its Appearance, at *Charles Town*, in *South Carolina*, is as follows.

	H. M.	Morning
Begin	- - - 2 54	at <i>Charles-</i>
Immerfion	- - 4 0	<i>Town,</i>
Middle	- - 4 50	in <i>South</i>
Emersion	- - 5 40	<i>Carolina,</i>
Moon sets	- - 6 11	apparent time.
Then Dig. ecl.	6° 2'	
End	- - - 6 46	
Digits in all	20° 44'	

Moon's Setting

End.



6. Of the Sun, Wednesday the 16th of October, between 1 and 2 in the Morning.

4 The LADIES CHRONOLOGER.

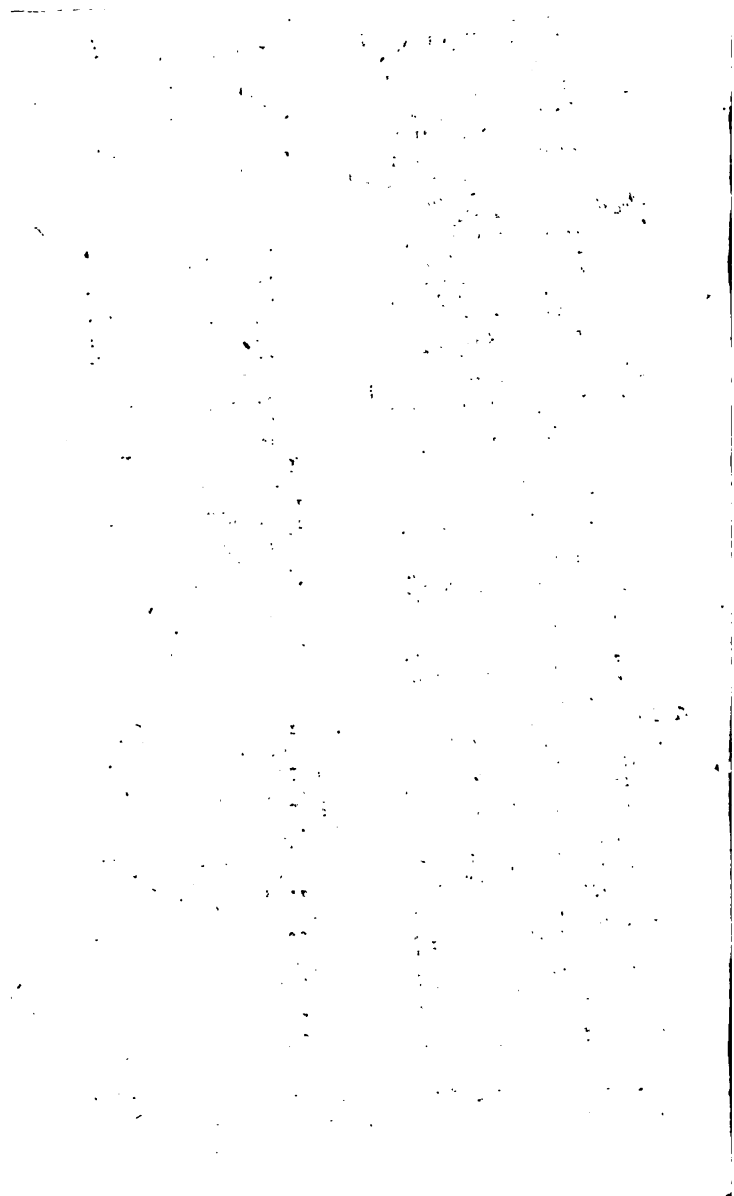
Of the Feasts and Fests, (Fixed and Moveable) Holy-Days and Remarkable Days, for the Year 1754, New Style; with other Chronological Events.

Jan.	1 Circumcision, or New Years Day	25 St. Mark
	4 Sir Isaac Newton born 1642, New Style	26 D. of Cumberland born 1721
10	5 Old Christmas Day	27 Vict. of Culloden, 1746.
	6 Epiphany, or Twelfth Day	1 St. Phil. and St. James Easter Term begins
	10 Princess Elizabeth born 1740, N. S.	3 K. Ch. II. crowned at Westminster, 1661. K. James crowned, 1685
	15 Exchequer opens	4 Q. Anne crowned, 1702.
	23 Hillary Term begins	12 England and Scotland united, 1707
	25 Conversion of St. Paul	14 Vict. over the French Fleet, by Ads. Anson and Warren, 1747
	30 K. Charles I. Mart.	16 Peace proclaimed with France, 1713
Feb.	2 Purif. of the V. Mary, or Candlemas Day	19 Prfs. Mary of England married P. Hesse 1742. Rogation Sunday
	9 K. Charles I. Mart. 1648, N. S.	23 Ascension Day
	12 Hillary Term ends,	24 Pr. Fred. Will. born, 1750. N. S.
	13 Old Candlemas Day	27 Easter Term ends
	24 Shrove Sunday. St. Matthias	29 K. Ch. II. Restoration
	26 Shrove Tuesday	4 P. of Wales born 1738, N. S.
	27 Ash Wednesday, First Day of Lent	9 K. Ch. II. arrived in London, 1660. Trinity Sunday
March	3 1st Sunday in Lent	10 Princess Amelia born, 1711, Prfs. Caroline born, 1713, N. S.
	5 Princess Maria of Hesse born, 1722	11 St. Barnabas
	19 Princess Louisa Anne born, 1749	13 Corpus Christi Day
	25 Pr. Edw. born, 1739. Princess Royal of Eng. married Pr. of Orange, 1734. Annun. V. M. Lady Day, 1st Quarter Day	14 Trinity Term begins
April	1 All Fools Day	16 Sun and Clocks together
	3 Q. Eliz. died, 1603, N. S.	21 Longest Day
	4 Fort. Chagre taken by Ad. Vernon, 1740	22 K. George II. Inaug. K. Geo. I. died, 1727, N. S.
	5 Old Lady Day	24 St. John Baptist. 2d Quarter Day, or Midsummer
	7 Palm Sunday	26 K. Geo. II. proclaim'd
	12 Good Friday	27 C. Breton taken, 1745. Battle of Dettingen, 1743
	24 Easter Sunday	29 St. Peter and St. Paul
	25 Sun and Clocks go together	3 Trinity Term ends
	26 Easter Tuesday	
	27 Low Sunday	
	22 K. Wm. and Q. Mary crowned, 1689.	
	23 St. George	
		May
		June
		July

The LADIES CHRONOLOGER. 5

	5 Old Midsummer Day	7 P. H. Fred. born, 1745
	15 St. Swithin	8 Lord Mayor sworn at Westminster
	22 Princess Car. Matilda born, 1751, N. S.	9 K. Geo. II. born 1683 N. S. not the 10th; because there was but 10 Days difference then betwixt the Old and New Stile; the 30th of Oct. 1683, Julian Account, being the 9th of Nov. according to the Gregorian: So that all the Stationers <i>Almanacks</i> , making his MAJESTY's Birth Day on the 10th of November are erroneous.
	25 St. James. D. of Monmouth beheaded, 1685	9 Lord Mayor's Feast Day
August	30 Dog Days begin	11 Martinmas
	1 Lammass Day	15 Gun-Powder Treason, 1605, N. S. Prince of Orange landed, 1688
	11 Prfs. Aug. born, 1737	22 Old Martinmas Day
	12 Q. Anne died, 1714	25 Pr. Will. Henry born, 1743, N. S.
	24 St. Bartholomew	28 Mich. Term ends.
	29 Beheading of St. John the Baptist	30 St. Andrew. Princess Dow. of Wales born, 1719, N. S.
	31 Sun and Clocks go together.	1 Advent Sunday. Queen Caroline died, 1737
Sept.	7 Dog Days end	3 Porto Bello taken by Adm. Vernon, 1739
	12 London burnt, 1666, N. S.	8 Great Wind, 1704
	23 Worcester fight, 1651	16 O Sapientia
	Q. Cromwell died 1658	18 Q. of Denmark born, 1724
	28 A great Earthquake 1692	21 St. Thomas. Shortest Day
	19 120 Men and Women burnt to death, at a Puppet-Shew, at Barnwell, near Cambridge, 1727	23 Sun and Clocks go together
	21 St. Matthew	25 Christmas Day. 4th Quarter
	22 Equal Day and Night	26 St. Stephen
	28 Sheriffs of Lond. sworn	27 St. John
	29 St. Michael, 3d quarter Day	29 Holy Innocents
October	3 Gregorian Account began 1582	
	10 Old Michaelmas Day	
	18 St. Luke	
	22 K. Geo. II. crowned, 1727	
	28 St. Simon and St. Jude	
	31 K. Geo. I. crowned, 1714	
Nov.	1 All Saints Day	
	2 Princess of Orange born 1709. All Souls	
	3 War declared against Spain, 1739	
	5 Powder Plot	
	6 Mich. Term begins	

N. B. Our Friends and Correspondents of the Ladies Diary are desired to direct their Letters for the late Author of the Ladies Diary, [Frank or Post paid] to be left at Mr. Hallifax's, Clock-maker, at the Sign the Dial in Fleet-Street, London.



The LADIES CHRONOLOGER, 7

A French and English VOCABULARY.

There are Eleven Articles, in French, put before *Nouns*, to shew their Gender, Number, and Declension.

Singular.		Plural.		
Masc.	Fem.	Common.		
1. Le,	2. La	3. Les, the	} Nom. and Accusative, Genitive and Ablative Dative.	
4. Du,	5. De la	6. Des, of or from the		
7. Au,	8. a la	9. Aux, to the		
Common		To which is added the Numeral		
10. De, of or from	}	Gen. and Abl.	} Masc. Fem. } Com. } } an, una } Des } Plural.	
11. a, to		Dative. Sing.		a, an, one, } Some

See *Palladium* 1752, p. 52.

L'Almanac du Beau Sexe, 1754, *Nouveau Stile*. The Fair Sex's Almanack, for 1754, New Stile.

Novelle Lune (● N. L.) New Moon

Pleine Lune (○ P. L.) Full Moon

Premier Quartier. (Pr. Qu.) first Quarter

Dernier quartier, (der. qu.) Last Quarter

Jour du Mois, Day of the Month

Jour de la Lune, Day of the Moon, or Moon's Age

Lever & Coucher de Lune, Rising and Setting of the Moon

Haut Marée a Londres, High Water at London.

Entrée du Soliel en Sc., Sun enters in the respective Signs

Jour, Heur, & minute, Day, Hour, and Min.

Commencement du Crepuscule, ou la Pointe, Beginning of Twilight, or Daybreak

Lever du Soliel, Rising of the Sun

Coucher du Soliel, Sun set.

Jour allonge, Length of Day

Soliel retarde, ou avance du Horologe, Sun too slow or fast of the Clock

Matin, } m } Mor.

Midi, } s } Noon

Soir, } f } Even.

Nuit, Night

Minuit, Midnight

Jour, Heur, & 6., (J. h. & 6) Day, Hour, and Conjunction

Le Soliel, the Sun

La Lune, the Moon

Une Etoile, A Star

Les Planets, the Planets

Un Comète, a Comet

Le Commencement, the Beginning

Le Milieu, the Middle

La Fin, the End

L'Orient, the East

L'Occident, the West

Le Midi, the South

Le Septentrion, the North

Une Année, a Year

Un Mois, a Month

Une Semaine, a Week

Un Jour, a Day

Un Heur, an Hour

Un Minute, a Minute

Un demie Heur, half an Hour

Un Quart de Heur, a Quarter of an Hour

Un Horloge, a Clock

Une Montre, a Watch

Un Quadrant, a Dial

la Terre, the Earth

l'Eau, the Water

l'Air, the Air

la Ploie, the Rain

la Grêle, the Hail

la Neige, the Snow

la Gelée, the Frost

le Dégel, the Thaw

la Rosée, the Dew

Un Brouillard, a Fog or Mist

L'Aurore, the Dawn

Une Fête, a Festival

Jour de Jeune, a Fast

Un Jour de Fête, a Holiday

L'Année Bissextile, the Leap Year

Of the Planets

♄ Saturn

♃ Jupiter

♂ Mars

♀ Venus

☿ Mercury

☼ the Sun

☾ the Moon

Per. } Peregion }

Ap. } Apogee }

Aph.

8 The LADIES CHRONOLOGER.

French and English VOCABULARY

<i>Aph.</i> } Aphelion	<i>shop</i> Blaze	<i>Dimanche des Rameaux,</i>
<i>Perib.</i> } Perihelion	<i>La Septuagesime;</i> Sep-	Palm Sunday
of the Planets	tuagesime, &c.	<i>Jeudi Saint,</i> Maudin
<i>Dimanche,</i> Sunday	<i>La Vigile,</i> Fast	Thursday
<i>Lundi,</i> Monday	<i>La Quinquagesime,</i>	<i>Vendredi Saint,</i> Good
<i>Mardi,</i> Tuesday	Shrove Sunday	Friday
<i>Mercredi,</i> Wednesday	<i>Mardi Gras,</i> Shrove	ou, or
<i>Jeudi,</i> Thursday	Tuesday	<i>Pasques,</i> Easter
<i>Vendredi,</i> Friday	<i>Mercredi des Cendres</i>	<i>Lundi apres Pasque,</i>
<i>Samedi,</i> Saturday	Ash Wednesday,	Easter Monday
<i>Le Printems,</i> the Spring	<i>Commencement de la</i>	<i>Mardi apres Pasque,</i>
<i>L'Ete,</i> the Summer	<i>Sciences à Cambridge</i>	Easter Tuesday
<i>L'Automne,</i> Fall of the	Cambridge Com-	<i>Commencement du Mar-</i>
Leaf	mencement of Arts	riage, Marriage be-
<i>L'Hiver,</i> Winter	<i>Mars, MARCH</i>	gins
<i>Janvier,</i> JANUARY	<i>Evêque,</i> Bishop	<i>1 Dimanche apres Pas-</i>
<i>La Circoncision,</i> Cir-	<i>La Quadragesime, au</i>	<i>que, 1 Sunday after</i>
cumcision	<i>Dimanche apres Ca-</i>	Easter, &c.
<i>Naissance du Chevalier</i>	<i>reme, Quadragesima</i>	<i>Naissance du Duc de</i>
<i>Isaac Newton,</i> Birth	or 1st Sunday after	Cumberland, Birth
of Sir Isaac Newton	Lent, &c.	of the Duke of
<i>Dimanche de l'Epiph.</i>	<i>Naissance de la Prêss</i>	Cumberland
Sunday of Epipha-	<i>Hesse, Princess of</i>	<i>Victorie à Culledem,</i>
ny	<i>Hesse's Birth Day</i>	Victory at Cullo-
<i>Naissance de la Prêss</i>	<i>4 Term, Ember Week</i>	den
<i>Elix. Princess Eli-</i>	<i>Gregoire, Gregory</i>	<i>1 retour, 1 return, &c.</i>
<i>zabeth's Birth Day</i>	<i>Edouard, Roi du Occ.</i>	<i>Mai, MAY</i>
<i>1 Dimanche apres de</i>	<i>Sax, Edw. King of</i>	<i>Commencement du Ter-</i>
<i>l'Epiph. 1 Sunday</i>	West Saxons	<i>de Pasque, Easter</i>
<i>after Epiphany, &c.</i>	<i>Naissance de la Prêss</i>	Term begins
<i>S. Hilaire, St. Hillary</i>	<i>Louise Anne, Birth</i>	<i>Invention de la Croix,</i>
<i>Commencement le Ma-</i>	of Princess Louisa	Invention of the
<i>riage, Marriage be-</i>	<i>Anne</i>	Cross
gins	<i>Jour & Nuit egaux,</i>	<i>S. Jean, &c. St. John</i>
<i>L'Eschequier ouvre, the</i>	Day and Night	<i>Commencement du Elec-</i>
Exchequer opens	equal	<i>tion à Westminster,</i>
<i>Prisce, Prisca Virgin</i>	<i>L'Annunciation, Lady</i>	Westminster Elec-
<i>Fabien, Fabian</i>	Day	tion begins
<i>1 retour, 1 return, &c.</i>	<i>Naif. du Pr. Edouard,</i>	<i>Fin du Mariage, Mar-</i>
<i>Commencement du Term</i>	Birth of Prince Ed-	riage ends
<i>de Hilaire, Hillary</i>	ward	<i>Les Rogation, ou 5</i>
Term begins	<i>Dernier Acte du Cam-</i>	<i>Dim. ap. Pas. Ro-</i>
<i>La Conversion de S.</i>	bridge, Cambridge	<i>gation, or 5th Sun-</i>
<i>Paul, Conversion of</i>	latter Act	day after Easter
<i>St. Paul</i>	<i>Avril, APRIL</i>	<i>Jour de jeune, Fast day,</i>
<i>Le Martyrdom du Roi</i>	<i>Ev. Evêque, Bishop</i>	Rogation Week
<i>Charles. King Ch.</i>	<i>Fin du Term. d'Oxf.</i>	<i>Ascension du J. Christ,</i>
<i>Martyrdom</i>	& C. Oxford and	Christ's Ascension
<i>Feurier, FEBRUARY</i>	Cambridge Term	
<i>Blaise Evêque, Bi-</i>	end	

Naif.

The LADIES CHRONOLOGER. 9

French and English VOCABULARY.

<i>Naif. Roi Charles & Refs. K. Ch. Birth and Restoration</i>	<i>Juillet, JULY</i>	<i>S. Michel, St. Michael</i>
<i>Fin du Term d'Oxf. & Camb. Cambridge and Oxford Term ends</i>	<i>Visit. de la V. M. Visitation of the Virgin Mary</i>	<i>Octobre, OCTOBER</i>
<i>Juin, JUNE.</i>	<i>Fin. du Terme de Cam. Cambridge Term ends</i>	<i>Remigius Eveque du Reims, Remigius Bishop of Reims</i>
<i>La Pentecote, Whit-Sunday</i>	<i>Naissance de la Prsse Carol. & Matilda, Birth of Princess Caroline Matilda</i>	<i>S. Foy, S. Faith</i>
<i>Naif. du Pr. de Galles, Birth of the Prince of Wales</i>	<i>S. Jaques, St. James</i>	<i>Com. du Ter. d'Ox. & C. Cambridge Term begins.</i>
<i>a Têms, Ember Week</i>	<i>S. Anne, M're de la Vierge Marie, St. Anne, Mother of Virgin Mary</i>	<i>S. Luc, St. Luke</i>
<i>Dimanche de la Trinité, Trinity Sunday</i>	<i>Commencement du Canicule, Dog Days begin</i>	<i>Le Couronnement du Roi Geo. II. K. George's Coronation.</i>
<i>Com. du Mariage, Marriage begins</i>	<i>Aouÿ, AUGUST</i>	<i>Novembre, NOVEM.</i>
<i>retour, i return</i>	<i>Jour de la Mâs, pour la Moisson, Lammas Day</i>	<i>La Toussaints, All Saints</i>
<i>Election du Trinité Col. Trinity Col. Election</i>	<i>S. Barthelemi, St. Bartholomew</i>	<i>Naissance de la Prsse d'Or. Birth of the Princess of Orange</i>
<i>Naissance de la Prsse Amelia & Caroline, Birth of Princesses Amelia and Caroline</i>	<i>Decollation de St. Jean Bapt. Cutting off St. John's Head</i>	<i>Le fête des Morts, All Souls</i>
<i>La Fête de S. Sacrament, Corpus Christi Day</i>	<i>Sol. & Horo. unis, Sun and Clocks together</i>	<i>Elec. du Coll. de fête des Morts, All Souls Col. Elect.</i>
<i>i Dimanche apres la Trinité, i Sunday after Trinity, &c.</i>	<i>Septembre, SEPT.</i>	<i>i retour, i return, &c.</i>
<i>Sol. & Horo. unis, Sun and Clocks together</i>	<i>Naissance de la Vierge Marie, Birth of the Virgin Mary</i>	<i>Le complot des Papistes, Popish Plot</i>
<i>Roi Geo. II. Inaugur. K. George II. Inauguration</i>	<i>Fin du Canicule, Dog Days end</i>	<i>Com. du Ter. de Michel, Mich. Term begins</i>
<i>Naif. du S. Jean Bapt. Birth of St. John Baptist</i>	<i>Incendie de Londres, 1666, Nouveau Stile London burnt 12th New Stile</i>	<i>Naissance du Pr. Hen. Fred. Birth of Pr. Hen. Frederick</i>
<i>Election du Col. de S. Jean, Election of St. John's College</i>	<i>Exaltation de la Croix, Holy Cross, or Holy Rood Day</i>	<i>Jour du Lord Mayor à Londres, Lord Mayor's Day at London</i>
<i>Roi Geo. II. pro. K. Geo. II. proclaim'd</i>	<i>Jour & Nuit equeux, Day and Night equal</i>	<i>Naissance du Roi Geo. II. Birth of King George II.</i>
<i>S. Pierre, St. Peter</i>	<i>Sberifs de Londres, present le serment, Sheriffs of London sworn</i>	<i>Ev. Eveque, Bishop</i>
<i>Elect. du Col. d'Ex. Exeter Col. Election</i>		<i>Naissance du Pr. Guillaume Hen. Birth of Pr. William Henry</i>
		<i>Fin du Term. de Mich. Michael Term ends</i>
		<i>S. Andre, St. Andrew</i>
		<i>Naissance de la Prsse Dow. de Galles, Birth of Princess Dowager of Wales</i>
		<i>Decembre,</i>

10 The LADIES CHRONOLOGER.

French and English VOCABULARY.

<i>Decembre, DECEMBER</i>	<i>Fin du Ter. d'Ox. & Cam. Oxford and Cambridge Term ends</i>	<i>NOEL, Christmas</i>
<i>L'AVENT, Advent Sunday</i>		<i>S. Etienne, St. Stephen</i>
<i>Fin du Mariage, Marriage ends</i>		<i>S. Jean, St. John</i>
<i>Barbe, Barbary</i>	<i>Naissance de la Reine de Dannemarke, Birth of the Queen of Denmark</i>	<i>Les Innocents, Innocents Day</i>
<i>Ev. Bishop</i>		<i>Dimanche apres Noel, 1 Sun. after Christmas, &c.</i>
<i>Lucie, Lucia</i>		

N. B. By reading these *French Words*, a *French Almanack* will be as readily understood as an *English One*: And by reading the different Parts of Speech in *French*, and also the *Vocabulary*, in Mr. A. Boyer's *French and English Grammar*, the *French Tongue*, in general, will soon be understood with great Ease.

RULES for finding the Moveable FEASTS and HOLIDAYS.

EASTER, on which the Rest depends, is always the 1st Sunday after the 1st F. Moon happening upon, or next after the 21st of March; and if the F. Moon is on a Sunday, Easter is the Sunday following.

ADVENT SUNDAY is the nearest Sunday to the Feast of St. Andrew.

<i>Septuagesima</i>	9 We.		<i>Rogation Sunday</i>	5 Weeks
<i>Sexagesima</i>	8	before	<i>Ascension Day</i>	40 Days
<i>Quinquagesima</i>	7	Easter.	<i>Whitsunday</i>	7 Weeks
<i>Quadragesima</i>	6		<i>Trinity Sunday</i>	8 Weeks

ALL the moveable and fixed FEASTS observed in the CHURCH of England.

<i>All Sundays</i>	<i>St. Mark Evan.</i>	<i>St. Barth. Apo.</i>	<i>St. Thomas Apo.</i>
<i>Circumcision</i>	<i>St. Pb. and Ja. Ap.</i>	<i>St. Matth. Apo.</i>	<i>Nat. of Christ</i>
<i>Epiphany</i>	<i>Ascension J. Ch.</i>	<i>S. Mic. and all An.</i>	<i>St. Stephen Mart.</i>
<i>Conv. St. Paul</i>	<i>St. Barnabas</i>	<i>St. Luke Evan.</i>	<i>St. John Evan.</i>
<i>Purif. V. M.</i>	<i>Nat. St. J. Bap.</i>	<i>S. Sim. & Ju. Ap.</i>	<i>Holy Innocents</i>
<i>St. Matthias</i>	<i>St. Peter Apostle</i>	<i>All Saints</i>	<i>Mo. & Tu. in East.</i>
<i>Annun. V. M.</i>	<i>St. James Apostle</i>	<i>St. Andrew Apo.</i>	<i>Mo. & Tu. in Whits.</i>

VIGILS and FASTS.

Eve	<i>Nat. Chr.</i>	<i>Pentecost</i>	<i>St. James</i>	<i>St. Andrew</i>
or	<i>Purif.</i>	<i>St. Matthias</i>	<i>St. Bartholomew</i>	<i>St. Thomas</i>
Vigil	<i>Easter Day</i>	<i>St. John Bap.</i>	<i>St. Matthew</i>	<i>All Saints</i>
before	<i>Ascension</i>	<i>St. Peter</i>	<i>St. Simon and Jude</i>	

N. B. When a Feast Day falls on a Monday, the Vigil, or Fast is kept on the Saturday-Eve preceding; not on the Sunday, which is a Feast Day.

DAYS of FASTING and ABSTINENCE.

- I. The 40 Days of Lent
 - II. The Ember Days at the 4 Seasons on } 1st Sunday in Lent.
the Wednesday, Friday and Saturday, } The Feast of Pentecost
after the } September 14th
December 13th
 - III. The 3 Rogation Days; Monday, Tuesday, Wednesday, before Christ's Ascension, or Holy Thursday.
 - IV. All the Fridays in the Year, except Christmas-Day.
- SOLEMN DAYS kept, for which Particular Church Service is appointed.

I. Nov. 5, In Memory of the Popish Plot.

II. Jan. 30, In Memory of the Martyrdom of K. Charles I.

III. May 29, In Memory of the Birth and Return of K. Charles II.

The LADIES CHRONOLOGER. 11

A CORRECT TABLE, (by R. HEATH) shewing, by the Golden Number, the Times of the Mean Lunations, from 1710 to 1899, Gregorian Style; and may be continued to any Date, by adding the Days to these, the Lunations go forward, in a given Period, according to the Table at the End of *Lady's Philosopher*, No. III.

January.				February.				March.						
G. N.	New Mo.	First Qua.	Full Mo.	Last Qua.	G. N.	New Mo.	First Qua.	Full Mo.	Last Qua.	G. N.	New Mo.	First Qua.	Full Mo.	Last Qua.
1	29 $\frac{1}{2}$	7 $\frac{1}{4}$	14 $\frac{1}{4}$	22 $\frac{1}{4}$	28	5 $\frac{1}{2}$	13 $\frac{1}{2}$	20 $\frac{1}{4}$	29 $\frac{1}{2}$	7 $\frac{1}{4}$	14 $\frac{1}{4}$	22 $\frac{1}{4}$	29 $\frac{1}{2}$	7 $\frac{1}{4}$
2	18 $\frac{1}{2}$	26 $\frac{1}{4}$	4	11 $\frac{1}{4}$	17 $\frac{1}{2}$	24 $\frac{1}{4}$	2 $\frac{1}{2}$	10	19	26 $\frac{1}{4}$	4 $\frac{1}{4}$	11 $\frac{1}{4}$	18 $\frac{1}{2}$	26 $\frac{1}{4}$
3	8 $\frac{1}{4}$	15 $\frac{1}{4}$	23	130 $\frac{1}{4}$	6 $\frac{1}{2}$	14 $\frac{1}{4}$	21 $\frac{1}{2}$	29	7 $\frac{1}{4}$	14 $\frac{1}{4}$	22	29 $\frac{1}{4}$	7 $\frac{1}{4}$	14 $\frac{1}{4}$
4	26	3 $\frac{1}{4}$	11 $\frac{1}{4}$	18 $\frac{1}{4}$	24 $\frac{1}{2}$	2 $\frac{1}{4}$	9 $\frac{1}{2}$	17 $\frac{1}{2}$	26	3 $\frac{1}{4}$	11 $\frac{1}{4}$	18 $\frac{1}{4}$	24 $\frac{1}{2}$	2 $\frac{1}{4}$
5	15 $\frac{1}{2}$	23	230 $\frac{1}{4}$	8	14	21 $\frac{1}{2}$	28 $\frac{1}{2}$	6 $\frac{1}{4}$	15 $\frac{1}{2}$	23	130 $\frac{1}{4}$	8	14	21 $\frac{1}{2}$
6	4 $\frac{1}{4}$	12 $\frac{1}{4}$	19 $\frac{1}{4}$	27	3 $\frac{1}{2}$	10 $\frac{1}{2}$	18	25 $\frac{1}{2}$	5	12 $\frac{1}{2}$	19 $\frac{1}{4}$	27 $\frac{1}{2}$	3 $\frac{1}{2}$	10 $\frac{1}{2}$
7	23 $\frac{1}{4}$	1 $\frac{1}{2}$	31	9	16 $\frac{1}{2}$	7 $\frac{1}{2}$	15	12 $\frac{1}{4}$	23 $\frac{1}{4}$	1 $\frac{1}{2}$	30	8	15 $\frac{1}{2}$	7 $\frac{1}{2}$
8	12	19 $\frac{1}{2}$	26 $\frac{1}{4}$	4 $\frac{1}{2}$	10 $\frac{1}{2}$	18	25 $\frac{1}{4}$	3	12	19 $\frac{1}{2}$	26 $\frac{1}{4}$	4 $\frac{1}{2}$	10 $\frac{1}{2}$	18
9	1 $\frac{1}{2}$	9	16 $\frac{1}{4}$	23 $\frac{1}{4}$	—	7 $\frac{1}{2}$	14 $\frac{1}{4}$	22 $\frac{1}{2}$	1 $\frac{1}{2}$	9	16 $\frac{1}{4}$	23 $\frac{1}{4}$	—	7 $\frac{1}{2}$
10	20 $\frac{1}{4}$	27 $\frac{1}{4}$	5 $\frac{1}{4}$	12 $\frac{1}{4}$	18 $\frac{1}{2}$	26 $\frac{1}{4}$	4	11 $\frac{1}{2}$	20 $\frac{1}{4}$	28	5 $\frac{1}{4}$	13 $\frac{1}{4}$	20 $\frac{1}{4}$	27 $\frac{1}{4}$
11	9 $\frac{1}{2}$	17 $\frac{1}{4}$	24 $\frac{1}{4}$	2 $\frac{1}{4}$	8 $\frac{1}{4}$	15 $\frac{1}{4}$	23	1	9 $\frac{1}{2}$	16 $\frac{1}{2}$	23 $\frac{1}{2}$	1 $\frac{1}{4}$	9 $\frac{1}{2}$	17 $\frac{1}{4}$
12	27 $\frac{1}{2}$	5 $\frac{1}{2}$	12 $\frac{1}{2}$	20	26	3 $\frac{1}{2}$	11 $\frac{1}{2}$	18 $\frac{1}{2}$	27 $\frac{1}{2}$	5 $\frac{1}{2}$	12 $\frac{1}{2}$	20 $\frac{1}{4}$	26	3 $\frac{1}{2}$
13	17	24 $\frac{1}{2}$	2 $\frac{1}{4}$	9 $\frac{1}{4}$	15 $\frac{1}{2}$	23	2 $\frac{1}{4}$	8 $\frac{1}{4}$	17	24 $\frac{1}{2}$	2 $\frac{1}{4}$	9 $\frac{1}{4}$	15 $\frac{1}{2}$	23
14	6 $\frac{1}{4}$	13 $\frac{1}{4}$	21	28 $\frac{1}{4}$	4 $\frac{1}{4}$	12 $\frac{1}{4}$	19 $\frac{1}{2}$	27	6 $\frac{1}{4}$	13	21 $\frac{1}{4}$	28 $\frac{1}{4}$	4 $\frac{1}{4}$	12 $\frac{1}{4}$
15	25 $\frac{1}{4}$	2 $\frac{1}{4}$	10 $\frac{1}{4}$	17 $\frac{1}{4}$	23 $\frac{1}{4}$	1 $\frac{1}{4}$	9	16 $\frac{1}{4}$	24 $\frac{1}{4}$	2	9 $\frac{1}{4}$	17 $\frac{1}{4}$	23 $\frac{1}{4}$	1 $\frac{1}{4}$
16	13 $\frac{1}{2}$	21	28 $\frac{1}{2}$	6	12	19 $\frac{1}{2}$	26 $\frac{1}{2}$	4 $\frac{1}{2}$	13 $\frac{1}{2}$	21	28 $\frac{1}{2}$	6	12	19 $\frac{1}{2}$
17	3	10 $\frac{1}{4}$	17 $\frac{1}{4}$	25 $\frac{1}{4}$	1 $\frac{1}{2}$	9	16 $\frac{1}{4}$	23 $\frac{1}{4}$	3	10 $\frac{1}{4}$	17 $\frac{1}{4}$	25 $\frac{1}{4}$	1 $\frac{1}{2}$	9
18	21 $\frac{1}{2}$	29 $\frac{1}{4}$	7	14 $\frac{1}{2}$	20 $\frac{1}{4}$	7 $\frac{1}{2}$	5 $\frac{1}{2}$	13	22	29 $\frac{1}{4}$	7 $\frac{1}{4}$	14 $\frac{1}{2}$	20 $\frac{1}{4}$	7 $\frac{1}{2}$
19	11 $\frac{1}{4}$	18 $\frac{1}{4}$	26	3 $\frac{1}{4}$	9 $\frac{1}{2}$	17 $\frac{1}{2}$	24 $\frac{1}{2}$	2 $\frac{1}{2}$	10 $\frac{1}{4}$	17 $\frac{1}{2}$	25	3 $\frac{1}{4}$	9 $\frac{1}{2}$	17 $\frac{1}{2}$
April.				May.				June.						
1	28	5 $\frac{1}{4}$	13 $\frac{1}{4}$	20 $\frac{1}{4}$	27 $\frac{1}{2}$	5 $\frac{1}{4}$	12 $\frac{1}{4}$	20 $\frac{1}{4}$	26	3 $\frac{1}{4}$	11 $\frac{1}{4}$	18 $\frac{1}{4}$	27 $\frac{1}{2}$	5 $\frac{1}{4}$
2	17 $\frac{1}{2}$	25	2 $\frac{1}{4}$	10 $\frac{1}{4}$	17	24 $\frac{1}{4}$	2 $\frac{1}{4}$	9 $\frac{1}{4}$	13 $\frac{1}{2}$	23	130	8 $\frac{1}{4}$	17 $\frac{1}{2}$	25
3	5 $\frac{1}{4}$	13 $\frac{1}{4}$	20 $\frac{1}{4}$	28	5 $\frac{1}{2}$	12 $\frac{1}{2}$	20	27 $\frac{1}{2}$	3 $\frac{1}{2}$	11 $\frac{1}{2}$	18 $\frac{1}{2}$	26	5 $\frac{1}{4}$	13 $\frac{1}{4}$
4	24 $\frac{1}{4}$	2 $\frac{1}{2}$	10	17 $\frac{1}{2}$	24	1 $\frac{1}{4}$	0 $\frac{1}{2}$	16 $\frac{1}{4}$	23 $\frac{1}{2}$	130	8	15 $\frac{1}{2}$	24 $\frac{1}{4}$	2 $\frac{1}{2}$
5	14	21 $\frac{1}{4}$	28 $\frac{1}{4}$	6 $\frac{1}{4}$	13 $\frac{1}{2}$	21	28 $\frac{1}{2}$	6	12	19 $\frac{1}{2}$	26 $\frac{1}{4}$	4 $\frac{1}{4}$	13 $\frac{1}{2}$	21 $\frac{1}{4}$
6	3 $\frac{1}{4}$	11	18 $\frac{1}{4}$	25 $\frac{1}{4}$	3	10 $\frac{1}{4}$	17 $\frac{1}{4}$	25 $\frac{1}{4}$	1 $\frac{1}{2}$	20	9	16 $\frac{1}{4}$	23 $\frac{1}{4}$	3 $\frac{1}{4}$
7	21 $\frac{1}{2}$	28 $\frac{1}{4}$	6 $\frac{1}{4}$	14	20 $\frac{1}{2}$	28 $\frac{1}{2}$	6	13 $\frac{1}{4}$	19 $\frac{1}{4}$	26 $\frac{1}{4}$	4 $\frac{1}{4}$	12	21 $\frac{1}{2}$	28 $\frac{1}{4}$
8	10 $\frac{1}{4}$	18 $\frac{1}{4}$	25 $\frac{1}{4}$	2 $\frac{1}{4}$	10	17 $\frac{1}{2}$	24 $\frac{1}{2}$	2 $\frac{1}{2}$	8 $\frac{1}{4}$	16 $\frac{1}{4}$	23 $\frac{1}{4}$	7 $\frac{1}{4}$	10 $\frac{1}{4}$	18 $\frac{1}{4}$
9	29 $\frac{1}{2}$	7 $\frac{1}{2}$	14 $\frac{1}{2}$	22 $\frac{1}{2}$	29	6 $\frac{1}{2}$	14 $\frac{1}{2}$	21 $\frac{1}{2}$	27 $\frac{1}{2}$	5 $\frac{1}{2}$	12 $\frac{1}{2}$	20 $\frac{1}{2}$	29 $\frac{1}{2}$	7 $\frac{1}{2}$
10	19	26 $\frac{1}{2}$	4 $\frac{1}{2}$	11 $\frac{1}{2}$	18 $\frac{1}{2}$	26 $\frac{1}{2}$	3 $\frac{1}{2}$	11 $\frac{1}{2}$	17	24 $\frac{1}{2}$	2 $\frac{1}{2}$	9 $\frac{1}{2}$	19	26 $\frac{1}{2}$
11	7 $\frac{1}{4}$	14 $\frac{1}{4}$	22	29 $\frac{1}{2}$	6 $\frac{1}{4}$	14 $\frac{1}{4}$	21 $\frac{1}{4}$	29	5 $\frac{1}{4}$	12 $\frac{1}{4}$	19 $\frac{1}{4}$	27 $\frac{1}{4}$	7 $\frac{1}{4}$	14 $\frac{1}{4}$
12	26 $\frac{1}{4}$	4	11 $\frac{1}{2}$	19	25 $\frac{1}{4}$	3 $\frac{1}{4}$	10 $\frac{1}{4}$	18 $\frac{1}{4}$	24 $\frac{1}{4}$	2	9 $\frac{1}{2}$	17	26 $\frac{1}{4}$	4 $\frac{1}{4}$
13	15 $\frac{1}{2}$	23	230	8	15	22 $\frac{1}{2}$	29 $\frac{1}{2}$	7 $\frac{1}{2}$	13 $\frac{1}{2}$	21	28 $\frac{1}{4}$	6	15 $\frac{1}{2}$	23
14	5	12 $\frac{1}{2}$	19 $\frac{1}{4}$	27 $\frac{1}{4}$	4 $\frac{1}{2}$	12	19 $\frac{1}{4}$	26 $\frac{1}{4}$	3	10 $\frac{1}{2}$	17 $\frac{1}{4}$	25 $\frac{1}{4}$	5	12 $\frac{1}{2}$
15	22 $\frac{1}{4}$	130	8	15 $\frac{1}{4}$	22 $\frac{1}{4}$	29 $\frac{1}{4}$	7 $\frac{1}{4}$	15	20 $\frac{1}{4}$	28 $\frac{1}{4}$	6	13 $\frac{1}{4}$	22 $\frac{1}{4}$	29 $\frac{1}{4}$
16	12 $\frac{1}{2}$	19 $\frac{1}{2}$	27	4 $\frac{1}{2}$	11 $\frac{1}{2}$	19	26 $\frac{1}{2}$	4	10 $\frac{1}{4}$	17 $\frac{1}{4}$	25	2 $\frac{1}{4}$	12 $\frac{1}{2}$	19 $\frac{1}{2}$
17	1 $\frac{1}{2}$	9	16 $\frac{1}{4}$	23 $\frac{1}{4}$	130 $\frac{1}{2}$	8 $\frac{1}{4}$	15 $\frac{1}{4}$	23 $\frac{1}{4}$	29	6 $\frac{1}{4}$	14 $\frac{1}{4}$	21 $\frac{1}{4}$	1 $\frac{1}{2}$	9
18	20 $\frac{1}{4}$	28	13 $\frac{1}{4}$	11 $\frac{1}{4}$	20	17 $\frac{1}{4}$	5 $\frac{1}{4}$	12 $\frac{1}{4}$	18 $\frac{1}{4}$	26	3 $\frac{1}{4}$	11 $\frac{1}{4}$	20 $\frac{1}{4}$	28
19	8 $\frac{1}{4}$	16 $\frac{1}{4}$	23 $\frac{1}{4}$	1 $\frac{1}{4}$	8 $\frac{1}{4}$	15 $\frac{1}{4}$	23	130 $\frac{1}{4}$	6 $\frac{1}{4}$	14 $\frac{1}{4}$	21 $\frac{1}{4}$	29	8 $\frac{1}{4}$	16 $\frac{1}{4}$

N. B. The Mean New Moons, Fulls, or Quarter Moons, happen exactly 14 Days sooner in 4 Julian Years, or 15 Days, 12 Hours, 44 Min. 7 Sec. forwarder in that Time.

12 The LADIES CHRONOLOGER.

The FOREGOING TABLE continued.

July.				August.				September.				
G.	New Mo.	First Qua.	Full Mo.	Last Qua.	New Mo.	First Qua.	Full Mo.	Last Qua.	New Mo.	First Qua.	Full Mo.	Last Qua.
1	25 $\frac{1}{2}$	3 $\frac{1}{2}$	10 $\frac{1}{2}$	18 $\frac{1}{2}$	24	1 $\frac{1}{2}$	9 $\frac{1}{2}$	16 $\frac{1}{2}$	22 $\frac{1}{2}$	30 $\frac{1}{2}$	8	15 $\frac{1}{2}$
2	15	22 $\frac{1}{2}$	29 $\frac{1}{2}$	7 $\frac{1}{2}$	13 $\frac{1}{2}$	21	28 $\frac{1}{2}$	6	12	19 $\frac{1}{2}$	26 $\frac{1}{2}$	4 $\frac{1}{2}$
3	3 $\frac{1}{2}$	10 $\frac{1}{2}$	18	25 $\frac{1}{2}$	2	9 $\frac{1}{2}$	16 $\frac{1}{2}$	24 $\frac{1}{2}$	30 $\frac{1}{2}$	7 $\frac{1}{2}$	15 $\frac{1}{2}$	22 $\frac{1}{2}$
4	22 $\frac{1}{2}$	29 $\frac{1}{2}$	7 $\frac{1}{2}$	14 $\frac{1}{2}$	20 $\frac{1}{2}$	28	6	13 $\frac{1}{2}$	19 $\frac{1}{2}$	26 $\frac{1}{2}$	4 $\frac{1}{2}$	12
5	11 $\frac{1}{2}$	19	26 $\frac{1}{2}$	4	10	17 $\frac{1}{2}$	24 $\frac{1}{2}$	2 $\frac{1}{2}$	8 $\frac{1}{2}$	16 $\frac{1}{2}$	23 $\frac{1}{2}$	1 $\frac{1}{2}$
6	130 $\frac{1}{2}$	8 $\frac{1}{2}$	15 $\frac{1}{2}$	23 $\frac{1}{2}$	29	6 $\frac{1}{2}$	14 $\frac{1}{2}$	21 $\frac{1}{2}$	27 $\frac{1}{2}$	4 $\frac{1}{2}$	12	20 $\frac{1}{2}$
7	18 $\frac{1}{2}$	26 $\frac{1}{2}$	4	11 $\frac{1}{2}$	17 $\frac{1}{2}$	25	2 $\frac{1}{2}$	10 $\frac{1}{2}$	16	23 $\frac{1}{2}$	1 $\frac{1}{2}$	8 $\frac{1}{2}$
8	8 $\frac{1}{2}$	15 $\frac{1}{2}$	23	30 $\frac{1}{2}$	6 $\frac{1}{2}$	14 $\frac{1}{2}$	21 $\frac{1}{2}$	29	5 $\frac{1}{2}$	23 $\frac{1}{2}$	10	27 $\frac{1}{2}$
9	27	4 $\frac{1}{2}$	12 $\frac{1}{2}$	19 $\frac{1}{2}$	25 $\frac{1}{2}$	3 $\frac{1}{2}$	10 $\frac{1}{2}$	18 $\frac{1}{2}$	24 $\frac{1}{2}$	2	9 $\frac{1}{2}$	17
10	16 $\frac{1}{2}$	24	1 $\frac{1}{2}$	9 $\frac{1}{2}$	15	22 $\frac{1}{2}$	1 $\frac{1}{2}$	8 $\frac{1}{2}$	13 $\frac{1}{2}$	21	28 $\frac{1}{2}$	5 $\frac{1}{2}$
11	4 $\frac{1}{2}$	12 $\frac{1}{2}$	19 $\frac{1}{2}$	27	3 $\frac{1}{2}$	11	18 $\frac{1}{2}$	25 $\frac{1}{2}$	2	9 $\frac{1}{2}$	16 $\frac{1}{2}$	24 $\frac{1}{2}$
12	23 $\frac{1}{2}$	1 $\frac{1}{2}$	10 $\frac{1}{2}$	16 $\frac{1}{2}$	22 $\frac{1}{2}$	29 $\frac{1}{2}$	6 $\frac{1}{2}$	14 $\frac{1}{2}$	20 $\frac{1}{2}$	28 $\frac{1}{2}$	6	13 $\frac{1}{2}$
13	13	20 $\frac{1}{2}$	27 $\frac{1}{2}$	5 $\frac{1}{2}$	11 $\frac{1}{2}$	19	26 $\frac{1}{2}$	4	10 $\frac{1}{2}$	17 $\frac{1}{2}$	25	2 $\frac{1}{2}$
14	2 $\frac{1}{2}$	10	17 $\frac{1}{2}$	24 $\frac{1}{2}$	1 $\frac{1}{2}$	8 $\frac{1}{2}$	15 $\frac{1}{2}$	23 $\frac{1}{2}$	29	6 $\frac{1}{2}$	14 $\frac{1}{2}$	21 $\frac{1}{2}$
15	20 $\frac{1}{2}$	27 $\frac{1}{2}$	5 $\frac{1}{2}$	12 $\frac{1}{2}$	19	26 $\frac{1}{2}$	4 $\frac{1}{2}$	11 $\frac{1}{2}$	17 $\frac{1}{2}$	25	2 $\frac{1}{2}$	10 $\frac{1}{2}$
16	9 $\frac{1}{2}$	17 $\frac{1}{2}$	24 $\frac{1}{2}$	2 $\frac{1}{2}$	8 $\frac{1}{2}$	25 $\frac{1}{2}$	2 $\frac{1}{2}$	130 $\frac{1}{2}$	6 $\frac{1}{2}$	14 $\frac{1}{2}$	21 $\frac{1}{2}$	29
17	28 $\frac{1}{2}$	6 $\frac{1}{2}$	13 $\frac{1}{2}$	21 $\frac{1}{2}$	27 $\frac{1}{2}$	5	12 $\frac{1}{2}$	20	25 $\frac{1}{2}$	3 $\frac{1}{2}$	11	18 $\frac{1}{2}$
18	18	25 $\frac{1}{2}$	3 $\frac{1}{2}$	10 $\frac{1}{2}$	16 $\frac{1}{2}$	14	1 $\frac{1}{2}$	9 $\frac{1}{2}$	15	22 $\frac{1}{2}$	29 $\frac{1}{2}$	5 $\frac{1}{2}$
19	6 $\frac{1}{2}$	13 $\frac{1}{2}$	21	28 $\frac{1}{2}$	5	12 $\frac{1}{2}$	19 $\frac{1}{2}$	27 $\frac{1}{2}$	3 $\frac{1}{2}$	11	18 $\frac{1}{2}$	25 $\frac{1}{2}$
October.				November.				December.				
1	22 $\frac{1}{2}$	25 $\frac{1}{2}$	7 $\frac{1}{2}$	15	20 $\frac{1}{2}$	18 $\frac{1}{2}$	6	13 $\frac{1}{2}$	20 $\frac{1}{2}$	27 $\frac{1}{2}$	5 $\frac{1}{2}$	13
2	11 $\frac{1}{2}$	19	26 $\frac{1}{2}$	4	10	17 $\frac{1}{2}$	23 $\frac{1}{2}$	2 $\frac{1}{2}$	9 $\frac{1}{2}$	13 $\frac{1}{2}$	20 $\frac{1}{2}$	28
3	29 $\frac{1}{2}$	7 $\frac{1}{2}$	14 $\frac{1}{2}$	22 $\frac{1}{2}$	28	5 $\frac{1}{2}$	13 $\frac{1}{2}$	20 $\frac{1}{2}$	27 $\frac{1}{2}$	5 $\frac{1}{2}$	12 $\frac{1}{2}$	20 $\frac{1}{2}$
4	18 $\frac{1}{2}$	26 $\frac{1}{2}$	4	11 $\frac{1}{2}$	17 $\frac{1}{2}$	14 $\frac{1}{2}$	2 $\frac{1}{2}$	10	17	24 $\frac{1}{2}$	2 $\frac{1}{2}$	9 $\frac{1}{2}$
5	8 $\frac{1}{2}$	15 $\frac{1}{2}$	23	130 $\frac{1}{2}$	6 $\frac{1}{2}$	14 $\frac{1}{2}$	21 $\frac{1}{2}$	29	6 $\frac{1}{2}$	13 $\frac{1}{2}$	21	28 $\frac{1}{2}$
6	27	4 $\frac{1}{2}$	12 $\frac{1}{2}$	19 $\frac{1}{2}$	25 $\frac{1}{2}$	3 $\frac{1}{2}$	10 $\frac{1}{2}$	18 $\frac{1}{2}$	25 $\frac{1}{2}$	3	10 $\frac{1}{2}$	18
7	15 $\frac{1}{2}$	23	30 $\frac{1}{2}$	8	14	21 $\frac{1}{2}$	28 $\frac{1}{2}$	6 $\frac{1}{2}$	13 $\frac{1}{2}$	21	28 $\frac{1}{2}$	6
8	4 $\frac{1}{2}$	12 $\frac{1}{2}$	19 $\frac{1}{2}$	27	3 $\frac{1}{2}$	10 $\frac{1}{2}$	18	25 $\frac{1}{2}$	3	10 $\frac{1}{2}$	17 $\frac{1}{2}$	25 $\frac{1}{2}$
9	23 $\frac{1}{2}$	1 $\frac{1}{2}$	9	16 $\frac{1}{2}$	22 $\frac{1}{2}$	29 $\frac{1}{2}$	7 $\frac{1}{2}$	15	21 $\frac{1}{2}$	29 $\frac{1}{2}$	7	14 $\frac{1}{2}$
10	13	20 $\frac{1}{2}$	27 $\frac{1}{2}$	6	11 $\frac{1}{2}$	19	26 $\frac{1}{2}$	4	11 $\frac{1}{2}$	18 $\frac{1}{2}$	26	3 $\frac{1}{2}$
11	1 $\frac{1}{2}$	19	16 $\frac{1}{2}$	23 $\frac{1}{2}$	29 $\frac{1}{2}$	7 $\frac{1}{2}$	14 $\frac{1}{2}$	22 $\frac{1}{2}$	29	6 $\frac{1}{2}$	14 $\frac{1}{2}$	21 $\frac{1}{2}$
12	20 $\frac{1}{2}$	27 $\frac{1}{2}$	5 $\frac{1}{2}$	13	18 $\frac{1}{2}$	26 $\frac{1}{2}$	4	11 $\frac{1}{2}$	18 $\frac{1}{2}$	26	3 $\frac{1}{2}$	10 $\frac{1}{2}$
13	9 $\frac{1}{2}$	17 $\frac{1}{2}$	24 $\frac{1}{2}$	2 $\frac{1}{2}$	8 $\frac{1}{2}$	15 $\frac{1}{2}$	23	10 $\frac{1}{2}$	7 $\frac{1}{2}$	15 $\frac{1}{2}$	22 $\frac{1}{2}$	30
14	28 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	21 $\frac{1}{2}$	27	4 $\frac{1}{2}$	12 $\frac{1}{2}$	19 $\frac{1}{2}$	26 $\frac{1}{2}$	4 $\frac{1}{2}$	12	19 $\frac{1}{2}$
15	17	24	1 $\frac{1}{2}$	6 $\frac{1}{2}$	15 $\frac{1}{2}$	23	10 $\frac{1}{2}$	8 $\frac{1}{2}$	15	22 $\frac{1}{2}$	29 $\frac{1}{2}$	7 $\frac{1}{2}$
16	6 $\frac{1}{2}$	13 $\frac{1}{2}$	21	28 $\frac{1}{2}$	4 $\frac{1}{2}$	12 $\frac{1}{2}$	19 $\frac{1}{2}$	26 $\frac{1}{2}$	4 $\frac{1}{2}$	12	19 $\frac{1}{2}$	26 $\frac{1}{2}$
17	25 $\frac{1}{2}$	3	10 $\frac{1}{2}$	18	23 $\frac{1}{2}$	1 $\frac{1}{2}$	9	16 $\frac{1}{2}$	23 $\frac{1}{2}$	1 $\frac{1}{2}$	30	8 $\frac{1}{2}$
18	14 $\frac{1}{2}$	22 $\frac{1}{2}$	29 $\frac{1}{2}$	7	13	20 $\frac{1}{2}$	27 $\frac{1}{2}$	5 $\frac{1}{2}$	12 $\frac{1}{2}$	20 $\frac{1}{2}$	27 $\frac{1}{2}$	5 $\frac{1}{2}$
19	2	10 $\frac{1}{2}$	10 $\frac{1}{2}$	25 $\frac{1}{2}$	1 $\frac{1}{2}$	0	15 $\frac{1}{2}$	22 $\frac{1}{2}$	130 $\frac{1}{2}$	8 $\frac{1}{2}$	15 $\frac{1}{2}$	23 $\frac{1}{2}$

EXAMPLE. To find what Time the Full Moon happens in March 1754, the Golden Number being 7.

In the Column of Full Moon against 7, on the left Hand stands 8, shewing, that the Full Moon happens on the 8th Day, next before the 21st of March; and the Full Moon next following the 21st March against 7, is April 6 $\frac{1}{2}$ or 7, agreeing with the Time by Lord Macclesfield's curious *Calendar of Easter Full Moons* [See Palladium 1752, P. 69.] So for the Rest. *Perpetuum.* Let. being this Year F, always standing against the 7th of Ap.

The LADIES CHRONOLOGER. 13

NEW ÆNIGMAS (for the Cultivation of the *Invention* and *Judgment*) to be answered in next Year's LADIES CHRONOLOGER.

I. ÆNIGMA. By Χρονολογοποιῶν Λίπος.

A DIALOGUE betwixt Miss Lucy and her Mamma: And may serve for a Song

Miss. **H**OW happy was I when I suck'd at your Breast !
How admir'd by the Men ! By the *Fair* how carefs'd !
Nay, when I grew up, and cou'd walk by your Side,
How I *fung, laugh'd, and chatter'd* with innocent Pride !
Derry down, &c.

Mam. Ah ! *Lucy*, those Days were too good to remain,
Cou'd your *Father* be call'd from his *Grave* back again,
You wou'd always be Gay, and had ne'er been a *Bubble* ;
No *Soutb-S-a-Quill-Driver* had e'er caus'd you Trouble.

Miss. My *Pappa* I lov'd, and my *Guardian* esteem'd,
Who my *Dowry* advanc'd, and my *Credit* redeem'd,
And may all who to *Orphans* and *Widows* give Aid,
Be with Blessings both here and hereafter repaid.

Mam. But what will you say to that rapacious Crew, *
Who seek to destroy both your *Mamma* and *You* ?
Who, protected by *Pow'r*, no good Precept obey,
But like *Ministers* evil, their Country betray.

Miss. As for *Jews, Turks, and Infidels*, Pray'r's we are taught,
Let us pray THEIR Conversion may likewise be wrought,
That *Monopolies* all, so injurious to Trade,
May no longer the Rights of *Frat-Britons* invade.

Mam. Again, how shou'd you like to be tied to a Stranger,
And put your whole Stock into absolute Danger ?
To see your Friends gradually *dwindle* away,
Your *Title* usurp'd, and your Beauty decay ?

Miss. For every *Sore* I must furnish a *Plaster*.
And to obviate the Cause of so sad a *Disaster*,
I will change my *Attire*, and assume a *new Name*,
Yet my Charms they shall always continue the same.

Mam. The Expedient consider'd, your Case I approve ;
So *Tenants*, when rack'd, from their Stations remove,
And by changing their *Landlords*, and taking new Leases,
Their Credit revives, and their *Substance* encreases.

Miss. Had I,—or my Birth-right, like *Esau*, o'er run,
Or deserted my Friends, like the *Prodigal Son* ;
They some *Justice* might plead, for their Usage unkind,
But my Conduct for Censure has been too refin'd.

* Agents to an Honourable Society.

Mam.

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Mam These *Complaints*, I confess, are too shocking to hear,
But what we can't cure, we must patiently bear;
To all your Acquaintance *your Project* I'll tell,
Accept of my Blessings, dear *Lucy*, farewell!

II. *ÆNIGMA*. By *Alispia*.

BY fractur'd Rays of Light, ye Fair!
We view the Colour of your Hair,
The Golden, Silver, Brown, admire,
And all your Changes of Attire:
Yet think we not more vain,—who tell
That I in every Sort excel;
For when in public I appear
Once in a Month, or half a Year,
In a vast *Hoop*, and splendid *Robe*,
I spread my Charms half round the Globe.
And while Spectators wond'ring gaze,
Struck with the Beauty of my Face,
Dissolv'd in Tears, I melt away,
And all my boasted Charms decay.

Created by Almighty Pow'r,
I die—like Beings of an Hour;
No Wonder!—for my borrowed Plumes,
A more majestic Form assumes;
Calls me from that exalted Throne,
Which just before, I thought my own:
So *Ministers*, however Great,
Fall Victims to the injur'd State;
So *Rivers*, of whose Streams we boast,
Are in the boundless Ocean lost.

But, stay,—I somewhat more impart,
Will ease your Grief, and cheer your Heart:
From Beacons, elevated high,
Your *Danger* imminent descry;
But I, the Messenger of Heav'n,
That Station take which God has giv'n,
There, for a little Time, endure,
Your future *Safety* to secure.

II. *ÆNIGMA*. By *Belinda* of *Oxford*.

THAT my Parents were *foreign*, no Man can deny;
Yet a chargeable, whimsical *Native* am I,
My Temper is crabbed as *Verjuice*, I own,
But the more so, whenever I'm left all alone;
For when call'd to a *Feast*, with good Company join'd,
I recreate the *Guests*, and oblige half Mankind.
Nay, to make some amends, as Dame Nature impow'rs,
I distribute, like *April*, both Sunshine and Show'rs.
As with *Sweetness* innate, I am frequently blest'd,
By Children, and those in low Life am possess'd.

By

By the *Frolick* and *Gay* I am always esteem'd,
 For, without me, their Mirth wou'd insipid be deem'd;
 When Oblations to *Bacchus*, or *Venus* they pay,
 Their Call I attend, — their first Summons obey.
 But for this my Attendance — *Hark!* how I am us'd,
 How with Insult am scorn'd, and with Torture abus'd.
 My Person they seize, then divide me in 'T'wain,
 When my Blood is drain'd out, and few Spirits remain,
 My Skin they take off, to redouble the Blow,
 And hang me as a *Felon*, for Service, or Show.
 But, vainly, they strive to extirpate my Race.
 For as soon as one's gone, lo! another takes Place.
 From Climates, far distant, I gain fresh Supplies,
 And my Offspring, thus barb'rously treated, ne'er dies;
 So num'rous my *Issue*, so vast is my Store,
 We shall last 'till this *System* of Earth is no more.
 But you my Name may more readily hit on,
 Know, I'm nearly allied to the *King of Great Britain*.

III. ÆNIGMA. By *Blowfabella*.

LOOK round the habitable World, and see
 What *Mortal* you can find from Trouble free;
 That you may judge of my Superior State,
 And mark the Odds betwixt the Poor and Great:
 I who am in an Orb of Glory plac'd,
 Of *Opulence* possess'd, with *Beauty* grac'd;
 Who all the Pleasures Life affords pursue,
 Want Nothing for Subsistence, Nothing new,
 Am bound to Duty for *Adelia's* Sake,
 And dare not, 'till reliev'd, my Post forsake;
 Where sometimes for Twelve Hours I'm forc'd to stay,
 Or doom'd to *Prison* be, th' ensuing Day.
 Such is the Pow'r of *Love*! 'Tis strange to tell,
 What haughty Souls in *beauteous Women* dwell.
 Then wonder not that *Adam*, *Eve* betray'd,
 That antient *Troy* in *Ashea*, *Helen* laid;
 That *Alexander*, by the Fair decoy'd,
 As *Lais* taught, *Persepolis* destroy'd:
 But why should I for such Examples roam,
 Who have so many *Greater Fools* at Home;
 Who bear ill Usage, as above you see,
 And feel the Effects of *Female Tyranny*.
 To Day, perhaps, I'm kept from human fight,
 To Morrow charg'd to play the *Hypocrite*;
 To cry and laugh; to be perfidious, true;
 Just as *Adelia* orders me to do.
 Last Night a jealous Fit attack'd her Head,
 And I, poor *Devil*, was deny'd the Bed;
 I restless lay, contemplating my Doom,
 She hugg'd a servile Traitor in my Room:

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Content as *Job*, these Insults I wou'd bear,
 Cou'd I once more embrace my fav'rite Fair.
 But oh! such Hopes are vain; ———
 For we like *Witches*, when we sign the Rolls,
 Must serve our *Masters*, tho' we damn our Souls.

V. ÆNIGMA. By *Upnorenfis*.

FROM a Divine and human *Race*
 My Parentage and Birth I trace,
 The Learned all agree;
 So *Joze*, descending from above,
 Pierc'd with the Dart of mighty Love,
 Encreas'd his Progeny.
 My Comfort is as *Phabus* bright,
 And I am all Mankind's Delight,
 Nay to encrease your Wonder!
 Our Conduct's to the Great unknown,
 For we, like *Darby* old, and *Joan*,
 Scarce ever are afunder.
 Our Pow'r on Earth is much the same,
 Alike our *Influence*, *Strength* and *Fame*,
 Which Nothing can withstand;
 The greatest *Empires* of the World,
 Are often in Confusion hurl'd,
 As either shall command.
 Not both the *Indies*, *France* and *Spain*,
 United could their Pow'r maintain,
 If not for our Alliance;
England alone—with Freedom blest'd,
 Of all our Progeny possess'd,
 Might bid the World Defiance.
 But I, contented with my Love,
 Chuse in a lesser Orb to move,
 There scatter round my Rays,
 With Kings, to Grandeur born, reside,
 Extend my Charms with decent Pride,
 And make the Vulgar gaze!
 Sometimes I wait upon the *Dead*,
 And sometimes take it in my Head,
 To mix among the Living;
 For wheresoe'er I deign to go,
 I very seldom find a Foe,
 But often cause *Thanksgiving*.

VI. ÆNIGMA. By Miss *Honeyfuckle*.

WHILE *Pope*, sublime, mounted on Eagle's Wings,
 My deathless Fame, in lofty Numbers sings,
 Sure I, who best my own Affairs must know,
 In humbler Lays may tell my Joy and Woe.

The LADIES CHRONOLOGER. 17

In a small *Copse* where numerous Saplings rise,
 And *Underwood* the coming Crop supplies,
 I live—there prun'd with Art and fenc'd with Care,
 Am made the fav'rite Object of the Fair ;
 Who fond to nurse and propagate my Race,
 Think it no Crime to suffer my Embrace ;
 Thus happy, I might during Life remain,
 The Pride, the Glory of the Nymph and Swain !
 But Oh ! whene'er Possession slight my Use,
 And seem of their Inheritance profuse,
 I'm cut and faggoted—The long and short
 In sep'rate Parcels tied with bandage Tort,
 When some are to the *Bake-House* sent, and some
 To make the Pot boil, are reserved at Home.
 Sometimes again, I share a better Fate,
 Rise to Preferment and oblige the Great
 For from the Nurs'ry mov'd, where first I grew,
 And thence transplanted in a Border new ;
 I, late a *Pauper*, now become a *Peer*,
 A *Prince*, *Prime-Minister*, or *Gazetier*,
 And thus, like *Proteus*, diff'rent Forms assume,
 Or ape the Judge, the Courtier, or Buffoon.
 Thus boast my Chatra, and keep those Arts in View,
 Which against Nature's Dictates, I pursue.
 Observe in me one rare Perfection mate,
 By which you eas'ly may my Name explore ;
 I can make young the antiquated Maid,
 And add fresh Charms to Beauty when decay'd.

VII. ENIGMA. By Miss *Ann Husk*.

1. Where sovereign Beauty sits enthron'd
 To captivate the Eye ;
 I, being an *Assitant* own'd,
 Affix my Station nigh.
2. Within a Cavity impress'd
 Upon a downy Bed
 I sink—my party-colour'd Vest
 Of lovely White and Red.
3. Around me, *Cupids* armed stand
 With *Bows* and *Arrows* keen,
 Detach'd by *Venus's* Command,
 Both *Love* and *Beauty's* Queen,
4. As little Stars pop in and out,
 When the Horizon's clear,
 Now seen to throw their Beams about,
 Anon to disappear.
5. So I, when mirthful Scenes arise,
 And worldly Blessings flow,
 With my Allurements feast your Eyes,
 But fly from Grief and Woe.

6. By Nature form'd, devoid of Art
 These harmless Pranks I play,
 Yet, now and then, emit a Dart,
 And undesign'd betray.
7. When in one Station I am plac'd,
 How much admir'd and priz'd,
 But in another, how disgrac'd,
 Affronted, and despis'd.
8. My Favours I, to either Sex
 Impartially bestow,
 Which in a *Son of Mars* perplex,
 But Pleasure give to *Clo'*.

VIII. *ÆNIGMA.* By Mr. Thomas Cowper.

ALL Mankind know my Use, my Favour share,
 To some I give too much, to others spare ;
 The Rule which Nature dictates I pursue,
 And stand aloft expos'd to public View ;
 That others may my Owner's Failings see,
 If they are chaste, or love *Ebriety* :
 For frequently my Shape and Size impart,
 The diff'rent ruling Passions of the Heart.
 Nay, by my Motion, some presume to guess,
 When I, or Calumny or Scorn express.

By some I'm term'd a Citizen of *Rome*,
 While others cry, " From *Grace Xantippe's* come !" ¹
 Yet, if you mind what *Roman* Poets tell,
Tongilianus seem'd to love me well :
 If I was seen, he only was content,
 Who took me with him wheresoe'er he went ;
 And some grave *Dons*, by his Example led,
 Ev'n now, arrain'd me, all their Grandeur spread.

On either Side of me a *Star* is plac'd,
 Which brightly shines—below a Cavern vast !
 Where Beasts and Birds the Sacrifice begun,
 T'appease the craving *Fiend* who lurks within :
 Above, a spacious Field, well mounted round,
 In which observe both smooth and furrow'd Ground ;
 That which is *Smooth* recreates the Young and Fair,
 The *Furrow'd's* let to Industry and Care.

Enough—For by these given Hints, no Doubt,
 And searching somewhere—you may find me out.

IX. *ÆNIGMA.* By Mr. Heath.

HAVE you not in a Summer's Day,
 Observ'd the Sun-Beams sweetly play,
 And dance along the Mead,
 'Till intervening Clouds surprize,
 Hide the first Object from your Eyes,
 Whence *Thunder-Shower's* proceed ?

The LADIES CHRONOLOGER. 19

So, at my Sight, see *Mankind* gay,
 The *Lover's* Sighs and Cares decay,
 The *Gamester's* Hopes arise ;
 The *School-Boy*, who play'd *Truant* late,
 And sits bemoaning coming Fate,
 The Master's Rod defies :
 But when a Tyrant takes my Place,
 Which is, alas ! too oft' the Case,
 He scatters Terror round ;
Alexis sinks into Despair,
Belinda cries and tears her Hair,
 And nought but Sorrow's found.
 Even I, who Happiness bestow,
 Have been the Messenger of Woe,
 And, like a *First-rate Thief*,
 Can promise fair—But take Delight,
 Sometimes to play the *Hypocrite*,
 For Joy dispensing Grief.
 If you would my true Nature find,
 Peruse the *Volume of Mankind*,
 There you may know your Fate ;
 This *Book*, alone, well understood,
 Will tell you whether I, or good,
 Or Ill prognosticate.

X. ÆNIGMA. By Mr. Christopher Mason, of Eastbourn, Suffex.

NO Creature has its Ribs so strangely plac'd ;
 For me you'll find all Belly, and no Waist.
 My convex-Ruffet Coat, when truly made,
 Is from the Carcass of some founder'd Jade.
 But for my Feats,—stand off, and clear the Way.—
 And give me Room to shew you all fair Play.
 I serve two Heroes, who with eager Force,
 Start me full Speed, along the beaten Course ;
 Oft on the verdant Glebe I progress make,
 In boundless Æther now a Journey take :
 With Courser's Speed from Port to Port I'm sent,
 While Numbers wait to see the last Event.
 Another Champion does for me prepare,
 Watch my Excursions,—lay for me a Snare,
 When Turn for Turn, the two *Herculeans* fly,
 As I, on either Hand their Courage try :
 Thus do I fare, 'till I have foil'd the Field,
 The Champions weary, and to me must yield.

XI. ÆNIGMA. By a Gipsy.

1. For Seventeen hundred Years, and more,
 This Orb of Earth I travell'd o'er,
 And visit'd each Nation :

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But ne'er, till lately, could procure,
For my Race, whether Rich or Poor,
A settled Habitation.

2. To trade I always was inclin'd,
And in it my Advantage find,
For all my Stock increases:
I gain Admittance to the Great.
Assist even *Ministers* of State,
Who may do what me pleases.
3. On God, alone, a Deist! I,
For future Happiness rely,
Hope for a MEDIATOR:
Who by and by, as Prophecy
Declares will all my Fears destroy,
And prove I am no Traitor:
4. And from what I experienc'd late,
I may presume my happy Fate,
Approaches every Day;
Since, from a Vagrant, wretched I,
(Such the Effects of Industry).
My *Banners* dare display.
5. The Heavenly Powers made me a *Slave*,
As earthly Power my *Freedom* gave,
And granted my Request;
From hence, let future Ages know,
That all is Pomp and solemn Shew;
Religion's made a Jest.

* * * *Whoever sends Answers before Candlemas next will have a Chance
for 6 Ladies Chronologers.*

PRIZE-ENIGMA. By Mr. T. Cooper.

1. BEHOLD yon antient *Altar* built,
E'er *Bigamy* was Sin;
Before our SAVIOUR'S Blood was spilt,
Or *Priestcraft* did begin;
Round which observe my willing Vot'ries croud,
Oblations bring,—and tell their Joy aloud.
2. *Mis*,—who has scarcely reach'd her Teens,
But longs to be a Bride;
By my repeated Visits seems
To throw such Thoughts aside.
Mamma too hopes from my propitious Aid,
To have parental Care, with Joy repaid.
3. I can a numerous Issue boast,
Which Pleasure give and Pain,
Yet of which they distribute most,
'Tis hard to ascertain:
For they, by *Providence*, like all Mankind,
Are some to Evil, some to Good inclin'd.

The LADIES CHRONOLOGER. 2

4. Not long ago, by some strange Fate,
I buried just Eleven ;
But what is stranger to relate,
Have just my Number given ;
And as that Number is made up again,
I shall so, for a *Century* remain.
5. To *Egypt* I my Being owe,
To *Rome* my Education,
To *Britain's* Peers my present Show,
And future Reformation :
Now tell, ye *Fair*, where this Director lives,
Who *Crowns* and *Chains*, and *Law*, and *Gospel* gives.

N. B. The *Ænigmas* by Mr. *Chr. Mason*, Mr. *Chapple*, *Palph* *Ridler*, *Esq*; *Upnorenfis*; Sir *Shallow Simpson*, Knight, *Timothy Marshall*, *Doodle Turner*, with an Epigram on the *Character* of *THREE COMPILERS*, we reserve.

The LADIES ORACLE, or QUERIST : *Being the Plan and Property of the late Author of the Ladies Diary.*

I. QUERE 39. By *Adastrea*.

WHAT is the best Cure for Persons addicted not to speak Truth, and also for Those who make Promises they never design to perform ?

II. QUERE 40. By *Luinda*,

GRANTING it in the Power of our Choice, of which Sex is it the most eligible to be, and for what Reasons ?

III. QUERE 41. By *Honestus*.

WHAT is the *greatest* Vice or Virtue, among the human *Species* ? And what are the *Limits* of Action betwixt *Good* and *Evil* ?

IV. QUERE 42. By *Miss J. P.*

WHAT should any Person do, having lost her, or his *Character*, ~~for~~ any *Latitude* ? Suppose about the *Latitude* of *Rochester* ?

V. QUERE 43. By *Sir Tatler Tardy*.

WHEN shall we have the History of *Upnor Castle*, and what will it contain ?

VI. QUERE 44. By *Upnorenfis*.

HOW should a Man be regarded that has more *Loquacity* than Judgment, *pretended* Friendships than *sincere* Intentions, and is more a fallacious *Busy-Body* than Man of Trust and *Probity* ?

VII. QUERE 45. By *Fidelia*.

WHETHER a Daily Paper, called the *Friend*, and conducted according to that *Character*, would not, at this Time of Day, prove ver-
acceptable ?

VIII. Q.

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VIII. QUERE 46. By *Amicus.*

WHETHER, if the Author of the *Palladium*, and late Author of the *Ladies Diary*, is a Person of "NO SCIENCE OR GENIUS," and yet was so near ruining the *Ladies Diary*, by setting up Works against it, as by the three present Operators * have been represented, there was so much Danger from him, as they pretended? And what may the Danger not be from those three surprizing *Gentlemen*, one of which, and his Works, we are told, "are known to the Greatest Mathematicians " of Europe?"

* Miss *Umbra Billingsgate*, *Amanuensis*; *Thomas Opacus*, Projector; *Maniculus*, Luminary; besides *O.b.s* teaching to Spell.

IX. QUERE 47. By *Χρονολογον-Πυβλικος.*

WHAT is it the Ladies like best? And what is fittest for them?

* * *Whoever sends Answers, before Candlemas next, has a Chance, by Lot, to win 6 Ladies Chronologers.*

PRIZE-QUERE. By *ΦΙΛΟ ΠΡΩΤ.*

HOW is Sensation performed betwixt animate and inanimate Substances, or Commerce conducted betwixt Soul and Body, seeing those Substances are allowed to be of a distinct and quite opposite Nature?

NEW QUESTIONS (for the Cultivation of the *Invention*, *Reason*, and *Judgment*) to be answered in next Year's *Ladies Chronologer*.

I. QUESTION. By Mr. *Thomas Maude.*

A and B join in taking a Farm of 120 Acres, at 60*l.* a Year, of which A is to pay 36*l.* and B 24*l.* Now they agree to divide the Land betwixt them in Proportion to their Shares of the Rent; but B's Lot is to be taken in a Part of the Estate rented, that is esteem'd better than the rest by 2*s.* per Acre: How many Acres will fall to the Share of each?

II. QUESTION. By the same Gentleman.

A Nobleman has two Semicircular Inclosures, the greater including the less, whose Diameters are 40 and 26 Poles, respectively, beginning together, and making one strait and two semicircular Fences: He would make a Circular Inclosure, so that it may touch the two Semicircular Fences, and also the strait Fence, 'tis required to find the Diameter of the circular Inclosures, by a simple Equation? And how to construct the same Geometrically?

III. QUES-

The LADIES CHRONOLOGER. 23

III. QUESTION. By Mr. John Wigglesworth,

ON June 6th, 1752, I took the Sun's *Azimuth* from the South, at 4^m 46^s past 9 o'Clock, and again at 5^m 40^s past 11 on the same Forenoon, and found each *Azimuth* from the South was the Complement of the other to 90°; required the Latitude?

QUESTIO. IV. A Domino Huntleio.

DEBET Gallo Batavus 27 Solidos; sed nihil habet nummorum præter aureos ducatus, quorum singuli 9s. 6d. valent: nec sunt Gallo nisi coronati Gallicani, 4s. 6d. singuli Valentes; quo modo solvendum est Patro, nummis quam paucissimis dinumeratis, hoc debitum?

V. QUESTION. By Mr. Alexander Naugbley, of Threlkeld, in Cumberland.

A *Gauger** is caught by a Thief in a Mill,
To gauge his *Mill-Hopper**, but thought past his Skill:
And since the poor *Gauger* is at his last Shift,
'Tis hop'd some kind *Artist* will give him a Lift.

* A Supervisor.

* The Sides of the *Hopper's* greater and lesser Base are in Proportion to each other, as $4\frac{1}{2}$ to 1, and the Solidity of the whole Square Pyramid is $13\frac{1}{2}$ Feet; but one Foot is cut off from the *Hopper* to the Shoe.

VI. QUESTION. By Mr. Thomas Cowper, of Wellingborough.

IN what Position must be set,
A *Beard*, the tenth of May||,
Which shall receive the greatest Heat
From Sol's refulgent Ray?
|| 1754. in Lat. 52 deg. 20 min. North.

VII. QUESTION. By Mr. A. Brooke.

REQUIRED the Sum Total of all the Numerators of all the proper Fractions that can possibly be expressed, the greatest Denominator being 1000, by a general Rule?

VIII. QUESTION. By Chesterfieldiensis.

GIVEN $1000x^2 + 1 = x^2$, Quere the Values of x and x^2 , in whole Numbers, the First of which not to exceed Seven Places, nor the Last Eight?

IX. QUESTION. By Mr. Henry Watfon, of Harpswell, Lincolnshire.

TO divide a Square into Two such Parts, whose Sum and Difference shall be a Square and Cube respectively?

X. QUESTION.

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X. QUESTION. *By Mr. Little Hoole.*

TWO Travellers, A and B, commence Motion from the same Place, at the same Time; A moves in the *Periphery* of a Circle, whose Diameter is equal to 20 Furlongs, and B moves without the said Circle, in such a manner, that the Distance of A and B, asunder, shall be every where a geometrical Mean, (*viz.* 4 : 6 :: 6 : 9) between the Distances respectively travelled by A and B from the Place of their setting out: Required the Nature of the Curve described by B, the *swiftest* Traveller? and the Distance B has travelled, when A has gone over 19,22 Furlongs; supposing them both to move upon a level Plain?

XI. QUESTION. *By Devonienfis.*

THERE is a Door 6 Feet high, being the Opening of a long Passage against a Street 8. Feet wide. *Quere*, the longest Ladder that can be put in at that Door?

XII. QUESTION. *By Amicus.*

A Ladder 50 Feet long, with the upper End resting on the Top of a Wall, 10 Feet high, and the lower upon the level Ground, is to be raised, by continually bringing the lower End nearer to that Wall, while the upper Parts slide over it, 'till it stands perpendicular with the said Wall: *Quere* the Nature and Length of the Curve, described by the upper End of the Ladder, the Area of that Curve; and also its greatest Distance from the Ladder when raised?

XIII. QUESTION. *By Mr. F. Holden.*

THERE is a Balance of such a Nature, that a certain Weight (*a*) put in either Scale (the other remaining empty) will cause the Beam to incline in an Angle of 45° to the Horizon; Required the Angle of Inclination of the Beam, where any other Weight (*b*) is put instead of *a* in the Scale?

XIV. QUESTION. *By Philotheoros.*

REQUIRED the greatest Parallelogram that can be inscribed in a Cycloid?

*** WHOEVER sends Answers, before Candlemas Day next, has a Chance by Lot to win 12 LADIES CHRONOLOGERS.

PRIZE-QUESTION. *By Mr. John Holden, of Westhouse, Yorkshire.*

A Curate borrowed of his Rector 20 £. giving him his Bill for the same, with Interest at the Rate of 5 per Cent. A Year after which the Curate began to pay to the Rector, 12d. per Week, in Part of the aforesaid Bill, I desire to know how many such weekly Payments will be required to clear off the whole Debt, the Interest due at each Time of Payment being always first accounted for?

NEW PARADOXES *Proposed.*

I. PARADOX. *By the Lads of the Hill.*

AT Rochester the Cuckow sings all the Year round.

II. PARADOX. *By Miss J. P.*

WHEN From I stand upon my Head,
Was for the Use of many a Seaman bred;
I'm *topsy turvy* turn'd—to please his Will,
Yet on my Head I stand—keep running still.

ANSWERS to the Diary Ænigmas, 1753.

- | | |
|----------------------------|--|
| I. 351. A COW-TIE. | VIII. 358. A CHILD'S CORAL
and BELLS. |
| II. 352. FAME. | IX. 359 A FROST. |
| III. 353. A PARROT. | X. 360. A NEWS PAPER. |
| IV. 354. A SNOWER. | XI. 361. The MONTHLY RE-
VIEW. |
| V. 355. VARIETY. | XII. 362. A CAT. |
| VI. 356. A PEDANT PRINTER. | |
| VII. 357. NOON-TIME. | |

PRIZE. A FRENCH-ALMANAC; LE PETIT ALMANAC, ou L'ALMANAC ROYAL.

1. Latin. *Jonab in the Whale's Belly.* 2. The Sun. 3. A Frog.

ANSWER to the Prize-Ænigma, in Ladies Diary, 1753,
by Mr. Christopher Mason.

By the Pretenders brought upon its Back,
I find the Prize is a FRENCH-ALMANAC:
—*Le Petit*, and *Almanac Royal* excel,—
And *Ladies Chronologer*,—bearing the Bell.—
And I've lost my Blue!

I. ÆNIGMA LATINUM, *Palladii* 1753, à *Burfordiensis*
sic responditur.

Nautica cœruleum Pinus levis innatas æquor,
Ac alveo grandi per mare veſtat onus;
Carbaſa recipiunt ventorum flamina et iras
Neptuni aſpernans bumida regna ſecat.

ANSWERS to the Oracle Queries in Ladies
Diary, 1753.

I. QUERE 31, answered by Modestus.

SOME of the Fair Sex prefer the gaudy Butterflies to the more
useful Animals, because their Passions are too strong for their Reason:

E

For

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For according to Dr. *Swift*, the Furniture of such Minds consist of,
A Set of Phrases learnt by Rote,
A Passion for a Scarlet Coat, &c.
 Tho', we find several Exceptions, to the Honour of the *British Ladies*.

II. QUERE 32, answered by Viator.

Of all Evils we should choose the least,
A Drone is found the far less hurtful Beast.

III. QUERE 33, answered by Mr. Alexander Rowe

Men can only be alike happy, but by the Means of being alike virtuous.

Some place the Bliss in Action, some in Ease,
Some call it Pleasure, and Contentment these :
'Tis Virtue only, makes our Bliss below,
And all our Knowledge is ourselves to know.

IV. QUERE 34, answered by Honestus.

ALL Controversies about Property are best ended by Reference to honest Men ; as all Contests about Trifles, which are commonly the most warm, are adjusted by entering into a new Footing of Amity and Friendship. Or the contending Parties may fling a Die to adjust their Differences, rather than go to Law ; which is humourously expressed by two obstinate Clients drawn on a Country Sign ; the one in Rags, and the other stark naked,

V. QUERE 35, answered by Corinna.

Walking through a Thicket of Thorns and Brambles, when a smooth Road lies before you, is like going to Law when Reason is at Hand, or the Gospel-Precepts, to decide Differences.

The thorny Intricacies will at length oblige you to seek the more pleasant and moral Road.

VI. QUERE 36, answered by Amicus.

THE Creditor might be better satisfied than in taking away the Liberty of the Debtor, by accepting of what Money or Security he could raise, in Discharge of the Debt.—If he has no Money, and can raise no Security, it is the best Satisfaction to a Generous Spirit to forgive him. If he is a poor honest Man, the Favour bestowed will strongly work upon his Gratitude, which his Confinement in Prison would prevent ; as the Creditor would thereby be necessary to the Misery, if not utter Ruin, of an honest Man and his Family.

If he is a Profligate to whom you thus extend your Clemency and Charity, this Act of Benevolence may work more for his Reformation, than a Prison, where ill Habits are contracted and confirmed ; so that if he once gets out again, he commonly proves Ten Times a greater Villain than before, and is Ten Times more dangerous to Community.

VII. QUERE 37, answered by Honorius.

BEAUTY when accompanied with Modesty, Prudence and Piety,
 great Advantage and Honour to the Possessor ; *It is a Blessing !*
 But

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But accompanied with Levity, Pride and Vanity, *It is a Curse! A valuable Diamond, set in the purest Gold is a faint Similitude of a virtuous and beautiful Woman!*

But, as is a Jewel of Gold in a Swine's Snout, so is a beautiful Woman without Discretion.—Prov. 11 and 22.

Beware the Allurements of Wantonness, and let not the Harlot tempt thee to riot in her Delight.

But when Virtue and Modesty enlighten the Charms of a beautiful Woman, her Lustre is brighter than the Stars of Heaven and the Influence of her Power is it in vain to resist; the Whiteness of her Bosom transcendeth the Lilly, her Smile is more delicious than a Garden of Roses.

The Innocence of her Eye is like that of the Turtle; Simplicity and Truth dwell in her Heart. The Kisses of her Mouth are sweeter than Honey; the Perfumes of Arabia breath from her Lips. Shut not thy Bosom to the Tenderness of Love; the Parity of its Flame shall enoble thine Heart, and soften it to receive the fairest Impressions.

ANSWERS to the LADIES-DIARY-QUERIES 1752, struck out of the LADIES DIARY Copy for 1753.

IV. QUERE 24. By Mr. Tankard.

WHETHER throwing the Debtor (willing to pay what he can) into Prison, is not the ready Way to render him insolvent?

Answered by Socius.—Yes—And renders him useless to Society, his King, his Country, Himself and Family.

V. QUERE 25. By Miss Tye.

WHETHER it is best to garter above or below Knee?

Answered by Mr. Knot—Above Knee, Miss, for Watfith, and below for Motion. But make the Knot sure, or let me tie it; for remember the Countess of Salisbury's Confusion and Blushes when she dropt her Garter dancing with King Edward III. who taking it up, gave the honourable Institution of the Garter on that Occasion.

VI. QUERE 26. By Miss Nanny Freak.

WHETHER it is best to play at Whoop and Hide, above Stairs or below?

Answered by Mr. Gambol—An eminent Author speaks of a sagacious Lion, never hurting those Virgins, or new married Women, brought to him for Tryal of their Chastity, if they have not forfeited it; but tears to Pieces the whole Sex who have lost it. The same excellent Author has observed that a Young Lady put to Tryal with the Lion for her Chastity, received a Scratch from his Paw, with

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admonishing Grumble (*without farther Hurt*) for playing at *Whooop* and *Hide* with Master Dicky, in the Garret; therefore 'tis presumed there is the less Danger below Stairs of falling into the *Lion's Mouth*.

We thank our Correspondents in general, for their several ingenious Answers.

PRIZE-QUERE in LADIES DIARY 1753, answered by ΧερονιμονονπυβλιxΘ.

It was the Will, or Reason, of the Creator, that the Models of the different Species of Animals should be so assigned, as they are; the Wisdom of which is astonishing beyond human Comprehension! And the same in the particular and respective vegetable Forms, we observe existing, so infinitely various.

And, as the various Sorts of Animals and Vegetables are destined for their particular Uses and Ends, so they are placed, in such a profuse Variety, as may best answer the Intentions for which they were created! Those, who are most conversant in the Works of Nature, are the most sensible of their different Tendencies, and that they do best answer the Ends of Creation, in such particular Models and Forms under which they exist; and that they could not answer the Divine Purpose so well under any other Forms and Models whatsoever.

For, as in the Strength and Speed of the Horse; all Animals are found to have their particular Uses, adapted to their particular Forms and Natures, which could not be so well executed by any other Form, Shape, Solidity or Surface.

Hence, they are also prepared to exist in different Countries and Climates, as the All-wise-Creator has best thought fit to adapt them. And we cannot so well have a thorough Insight to their different Uses, and Tendencies, as by Labour and Study; whereby the Mind of Man is exalted to a most agreeable Contemplation, and may trace the Wisdom, and Wonders of Creation, in an admirable and boundless Variety!

DIARY-QUERIES for 1754, (being the late Author's Plan usurp'd) answer'd by CATO.

I. By Solon. What is Happiness?

ANSWER.—Know Thou this Truth, enough for Man to know,
Virtue, alone, is Happiness below.

POPE's Ethic Epist. IV. l. 299 and 300.

II. By Solon. Whether more Persons are unhappy thro' real or fanciful Causes?

ANS.—As but very few real Causes of Things are known, no Doubt but the fanciful Causes are most predominant. But to ask whether more People are "not unhappy" [i. e. happy] "by Folly" is a Paradox.

III. By Timothy Booby. Whether a great Estate with a weak Head, or solid Understanding with a slender Fortune, is the more eligible?

ANSW.

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ANS.—According to the different Opinions of the Heads by which the Choice is to be made. Preference to the greater Virtue as it will be productive of the greater Happiness, is the Choice of Cato.

IV. By *Ariadne*. Whether deluding innocent Virgins of their Peace, and good Character, under the Pretensions of Love, and honourable Courtship, is not barbarous and inhuman? And whether Virgins, admitting of, or encouraging, such Addressees, after sufficiently knowing the Character of these Pretenders, are not as deep in the Dirt, as they are in the Mire?

ANS.—Verily.

PRIZE. By Philosophicus.

TO what Height will an Exhalation, Vapour, or Cloud, ascend in the most rarified State of Air?

ANS.—In all States of Air they will rise till an equal Bulk of either of them to the Part of the Atmosphere it possesses is of the same Gravity. As each will descend, in Condensation, as far as the same Bulk of Air continues to be lighter than itself.

The REBUS answer'd.

Mr. James Robinson is Prisoner at DUN-GEO-N. Our Friend and Correspondent.

*The Dread of a Debtor, with Half a Good King,
And Beginning of Nothing—his Residence bring.* DUN-GEO-N.

REMARKS on the DIARY ANSWERS for 1754, to our QUERIES in last Year's Diary.

1. MR. *Fish* replies to the pretended Miss G. L. or Miss *Bik*—that he did not speak to her Penetration, in particular, but to the superficial Part of the Sex in general.

2. *Lucinda* replies to *Oedipus* 2d. that she did not apply for a Sample of bad is the best; but to find out the least Evil.—Mr. *Barry's* scold as he likes.

3. *Abdiel* replies that all Men are to be made happy, alike, hereafter; which shews the Possibility of their being so; by dying as they ought: To do which they have only to live as they ought, here.

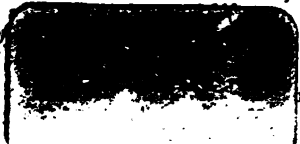
4. *Honestus* inculcates to *Oedip.* 2d. that if neither will own themselves Fools, they must be prov'd so.

5. *Boots* replies to Mr. T. *Booby*, that such Activity may be for the Use and Benefit of Health, without which Understanding is but like a feeble Bow.

6. *Amicus* approves Miss G. L.'s Scheme.

7. *Lucinda* thinks a fair Face a Gift and Grace to the Sex, better than a Gift and Grace of it; and that the Face is the Cause of Betrayers, foreign to the Owner's Heart,

*Women, ill-featur'd of
But are besieg'd, like*



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PRIZE. *Uporensis* thinks Animals might have kept Society with their own particular Species, had they been made in *other* Forms, and might have as well distinguished their wholesome Food from Poison, had the CREATOR so thought fit : Therefore the present Forms assign *no Reason* for their existing so good as the Reason of the Creator. And 'tis to be apprehended, that as the *Scriptures* were never designed to answer *metaphysical* Queries, Miss G. L. and Miss Bil— are both in the dark.

Remarks. The *Doodles, Shallows, Knight-Errants, &c.* equally please and surprise !—But Mr. *Ralph* has been a little out in the Times of his *Eclipses*. To find the Rising, Southing, and Setting of *fix'd Stars*, by an Operation, and daily Reference to the Motion of the Seven Stars, is extraordinary.—The choice *Ænigmas* are made according to the *Ænigmat*. Composit. of those "*who are far above soliciting* (as they were pleased to declare) *Contributions from Any.*" The Solutions to the *Ænigmas* are as elegant as they are humorous, and full of Nature. But Miss *Hulse* would not have Friend *Bamfield* introduce her Name any more, to reflect a Credit on *Persons*, and a *Work* she disowns, being now firmly attach'd, as our Friend, to the *Ladies Chronologer*.

MONITOR.

ANSWERS to the QUESTIONS in Ladies Diary 1753.

I. QUESTION 361, answered by Mr. Nicholson.

SINCE the Velocity of the Water is as the *Square Roots* of the Spaces descended, and the Momentum of Rotation of each Wheel, as this Velocity into the Length of the Spoke, we have $\sqrt{6} \times 9$ and $\sqrt{8} \times 8$ for the Ratios of *Momentum* of the Wheels respectively : Therefore, (as $\sqrt{8} \times 8$ is greater than $\sqrt{6} \times 9$) the lesser Wheel with the greater Fall of Water will grind most Corn with least Water : For the *Momentum* of Rotation, when greatest, being in Proportion, as 22,624 to 22,041, with the same Quantity of Water, 'tis evident, that the Water may be diminished from the lesser Wheel, and yet the *Momentum* may be greatest, and consequently will produce the greatest Effect, viz. of grinding most Corn.

Answered by Mr. T. Cowpor.

TO determine the uniform Celerity of the Water when it first strikes each Wheel ?

$$\text{Say } 16 \frac{1}{12} \text{ Feet : } 1 :: \left\{ \begin{array}{l} 6 \text{ Feet} \\ 8 \text{ Feet} \end{array} \right\} \left\{ \begin{array}{l} \sqrt{\frac{72}{193}} = 610783 \\ \sqrt{\frac{96}{193}} = 705272 \end{array} \right\} =$$

times of its Descent } First } Case
 } Second }

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But $610783 \times 18 = 10,994$ and $705272 \times 16 = 11,284$, are the respective *Momenta* of the Water. Whence the Excess in the left Case $= 29$ shews, that the Wheel of 16 Feet with 8 Feet fall, will grind the most Corn with least Water.

Mr. Smith of Rugby, Mr. James Hartley of Yarum, answered the same, as did also several others.

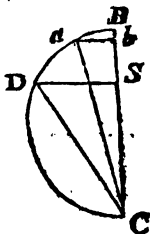
II. QUESTION 362, answered by Mr. F. Holden.

SUPPOSE the Radius of the Earth $= 4000$ Miles, then, because the absolute Weight of any Body is *reciprocally*, as the Square of its Distance from the Earth's Centre, it will be 3 :

$$16000000 :: 4 :: \frac{64000000}{3} \text{ whose Root } \frac{8000}{\sqrt{3}}$$

$=$ Dist. from the Earth's Centre $= 4618,8021$ Miles; from which subtract 4000, the Remainder $= 618,8021$ will be the Dist. from the Surface, which is the first Thing required.

For the Time of falling to the Ground. Let B represent the Ball; S, the Surface; and C, the Centre of the Earth; Bb, the Space fallen through in the 1st Second. And upon BC, as a Diameter, let the Semicircle BDC be described; draw the right Sines ba and SD, and join aC and DC, then the Times of the Body's Arrival at b and S, will be as the Areas BaC, BDC, (See Prop. 32. Lib. I. Princip. Newt.) Now any Area, as BDC, is found by multiplying $\frac{1}{2}$ Rad. into BD + DS. But $\frac{1}{2}$ Rad. is a constant Quantity, therefore those Areas are to one another as the Sums of the Arches + their Sines; and the Times of the Body's describing their versed Sines will be in the same Proportion, $\therefore$ as $Ra + ab : 1'' :: BD + DS$, the Number of Seconds in the whole Fall from B to S. Again, because heavy Bodies descend 16 $\frac{1}{2}$ Feet in 1" at the Surface, will descend $\frac{1}{4}$ of 16 $\frac{1}{2}$ in 1" at the Place where their Gravity is



$\frac{1}{4}$ of that at the Surface. Let then the Space Bb $= 12 \frac{1}{8}$ Feet, and reducing all the Dimensions into the same Name, the Arch AB will be found $= 4' 50'' 8'''$, and the Arch BD $= 42^\circ 56' 29''$. These Arches expressed in Parts of the Rad. and added to their Sines, give the Time required $= 508'' = 8' 28''$, neglecting the Resistance of the Air which seems to be the Proposer's Meaning, as no Mention is made either of the Size or Weight of the Ball. Q. E. I.

Mr. James Hartley, by Cor. I. P. 270, Mr. Emerson's Fluxions make the Time of Descent $= 8' 27'' 8''' \frac{1}{2}$ through a Space $= 515 \frac{1}{2}$ Miles, 63 $\frac{2}{3}$ Yards.

Solutio, à Dom. Hunleio.

PONATUR $a = 4$ libris, $b = 3$, $r = 21000000$ pedum, et x $=$ distantia à centro telluris quæsitæ, eritque $r - x$ altitudo supra terræ superficiem; et quoniam gravitas corporis cujus libet quovis à centro telluris spatio diffiti, ponderi corporis ejusdem ali-

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majus intervallum distantis, prout distantia minor quadrata distantia majori quadrata alternatim respondet, hæcce oritur analogia, ut

$$r^2 : a :: x^2 : b \therefore a \times r^2 = b \times x^2, \text{ et } x^2 = \frac{a \times r^2}{b}, \text{ adeoque } x =$$

$$\sqrt{\frac{a \times r^2}{b}}, \text{ et } x - r = 3248711,3 \text{ ped. five millibus passuum } 645,2862;$$

denique, ut $16 \frac{1}{4}$ ped. : $1'' \times 1'' :: 3248711,3 : 201992,83$ tempus quadratum, quo globulus in humum decidet, cujus ipsa radix est 449, 436 mom. five 7 min 29 mom. 436, &c.

Mr. Fijb's, the Proposer's Solution, exactly agrees with Mr. Huntley's as above.

SOLUTION by Mr. T. Cowper.

TAKING the Earth's Diam. = 4000 Miles = 21120000 Feet, we have $3 : 4 :: \frac{21120000}{4}^2 : 24387275^2$; but $24387275 - 21120000 = 3267275$ Feet = 618,8 Miles, the Height the Ball must be carried. Again $16 \frac{1}{4}$ Feet : 1 Sec. :: 3267275 Feet : 203146 Sec. the Square Root of which = 450 Seconds or 7 min. 30 Seconds, the Time of Falling. W. W. R.

III. QUESTION 363, answered by Mr. F. Holden.

LET ABC be the right-angled Triangle, and let AC = a, BD = b, and BC = x, then will AB = $\sqrt{a^2 + x^2}$, and : AB : Rad. :: BC : S. $\angle A =$

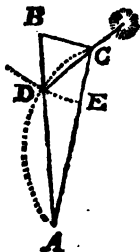
$\frac{x}{\sqrt{a^2 + x^2}}$: In the same Manner S. $\angle B = \frac{a}{\sqrt{a^2 + x^2}}$; let the S. $\angle BDC = s$, and its Cos.

c, and we shall have S. Sum $\angle BDC + DBC = \frac{sx + ca}{\sqrt{a^2 + x^2}} =$ S. $\angle BCD$, whence $\frac{sx + ca}{\sqrt{a^2 + x^2}}$

: b :: s : x $\therefore bx = \frac{sx^2 + cax}{\sqrt{a^2 + x^2}}$, whence $s^2 x^4 +$

$2scax^3 + c^2 a^2 x^2 - b^2 s^2 a^2 = 0$, by Redction; in which Equation making s and c = Sine and Cosine of $48^\circ 32' 20''$ (= Comp. of Sun's Amplit. the given Time and Place) we shall have $x = 2,694,747$, which, (because AC = 10, is the Tab. Tang. of $\angle A = 15^\circ 4' 54''$; and as S. $\angle ADC : AC ::$ S. $\angle A : DC = 3,471984$. Q. E. I.

Geomet. Const.—On the given Line AC describe an Arch of a Circle ADC to contain the given $\angle = 90^\circ +$ Sun's Amp. = $131^\circ 27' 40''$; draw CB Perpendicular to AC, and set off CE = 3 Miles, the Observer's Distance from B; then with the Asymptote CB, and Centre A, describe a Conchoid through E, and the Interfection of this Conchoid with the afore said Arch will determine the Point D, satisfying the



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the Conditions of the Question, as is evident from the known Property of the Conchoid and Circle.

The same was also elegantly answered by Mr. Thomas Maude of Sunderland.

Mr. T. Cowper's Solution is thus.

PUT $a = AC$, $b = BD$, $s = S$. $\angle ADC$, x and $y = S$. and $Co.$

$\angle ACD$. Then, $s : a :: x : \frac{ax}{s} = AD$. Again, $y : b :: s : s$

$$\frac{ab}{y} = BC \therefore \frac{bs+ax}{s} = AB; \text{ but (per. 47.e.1.) } \frac{a^2 x^2 + 2abxs}{s^2} \\ + \frac{b^2 s^2 + a^2 s^2}{s^2} = \frac{b^2 s^2}{y^2} = \frac{b^2 s^2}{1-x^2}; \text{ whence the Result as above.}$$

Mr. John Honey solved the same, as did the Proposer Nichol Dixon. And Mr. James Hartley solved it like Mr. Holden, and brings out the same Numbers; as did Mr. Cha. Smith, of Rugby, whose Method is short and Numbers also correct.

IV. QUESTION 364, answered by Mr. F. Holden. :

THE Sun's *Azimuth* at the given Time, and in the given Lat. is found *per Trig.* South $90^\circ 42' 29''$ Easterly, to which adding 60° their Sum, *viz.* $60^\circ 42' 29''$ will be the Bearing of the Tree from the South towards the East, which is the Direction of the Cloud, and its opposite, North $69^\circ 42' 29''$ westerly, or $WNW, 20^\circ 12' 29'' W$, will be the Point of the Compass the Wind blew from; also, because the Velocity of the Shadow will be the same with that of the Cloud, (supposing the Path of the Shadow and Ground to be both horizontal) $\therefore$ as 10, the Number of Pulsations during the Observation : 88 :: 66 $\times$ 70, the Pulsations in an Hour : 36960, the Yards moved by the Cloud in an Hour = 21 Miles.

Mr. James Hartley solved it in the same Manner, and brought out the very same Number of Miles Velocity, moved by the Cloud *per* Hour. Mr. Cha. Smith solved it by another Method.

V. QUESTION 365, answered by Mr. T. Cowper.

LET $a = 100l$, and $x = \text{Principal} = \text{Rate} = \text{Years}$.

Then, $a \times 1 : x :: x \times x : \frac{x^3}{a} = \frac{x}{2}$, whence $x = \sqrt{\frac{1}{2}a} =$
£. 7.07106781, or 7*l.* 1*s.* 5*d.* required.

Mr. J. Fish of Dartford solved it thus. Put $a = \text{Principal} = \text{Rate} = \text{Years}$.

By Simple Interest, as $100 : a :: a : \frac{a^2}{100} = \text{Interest for one Year,}$

which multiplied by $a = \frac{a^3}{100} = \text{Interest for } a \text{ Years,} = \frac{a}{2}$, whence a

= £. 7.071067 = 7*l.* 1*s.* 5*d.* as before.

Mr. F. Holden solved it in the same Manner, as did Mr. Gillyar Mr. Phil. Williams, Mr. Tho. Maud, Mr. A. Brooke, Mr. J. Hartley, Mr. Smith, Mr. Bootflower, and many others.

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VI. QUESTION 366, answered by the Rev. Mr. Baker, the Proposer.

By Optic Principles

$$\frac{aedr^2 - a^2 \times edtr +}{a^2 \times 2adr + a^2 \times c^2 tr^2}$$

$$\frac{edr^2 - a^2 \times edtr +}{a^2 \times 2adr + a^2 \times c^2 tr^2}$$

$$\frac{edr^2 - a^2 \times edtr +}{a^2 \times 2adr + a^2 \times c^2 tr^2}$$

the focal Dist. of a double convex Lens, of the same Convexity on both Sides; where

a to e is the Ratio of the Sine of Angle of Incidence to that of Refraction (in the present Instance as 17 to 11) d the Dist. of the radiant Point, t the Thickness of the Lens, and r the Radius of Convexity.

In which Theorem, if we write 17, 11, ux , x , $\frac{3}{8}x$, for a , e ,

d , r , t , respectively, and put $\frac{363}{1298} = b$, and $\frac{762}{649} = c$, will, after

due Reduction, become $\frac{ux+bx}{cx-1} = ux$. Hence, if we put $m = 8$,

and $p = 1000$, and suppose $x =$ Radius of Convexity of AB, the Object Glas; then will $ux = CF$, its focal Dist. at the Extremity of which Rays flowing from each Point of the Object O, concur and form an Image, or Representation thereof, as Im.

Now F being the Focus of the parallel Rays of the Eye Glas GH, in order to find FD, we must strike out of the above Theorem all the Terms not involving d , as bearing no Proportion to it, which is here

look'd upon as infinite. This done, and putting $\frac{10}{3}x$ and $\frac{5}{4}x$

for r , and t , as the Quest. requires, we get $\frac{3245}{1143} \times x = nx = FD$.

But $CF : CD :: CD : CE$. See *Hugens Opera Posthuma*, Prop. 20

i. e. $ux : ux + nx :: nx + nx : \frac{x}{x+n} \times \frac{x}{x+n} = CE \therefore \frac{x}{x+n} \times \frac{x}{x+n} =$

$+ux = m$.

But moreover the Power of magnifying, m , a Microscope of this Kind is nearly in a Ratio compounded of the Proportion, which the Dist. of the Image from the Eye-Glas, bears to its Distance from the Object-Glas, and of that which the Object's Dist. from the Object-Glas bears to its Dist. from the Spectator's Eye.

See Rowning's *compendious System of Nat. Philos.* Part III. P. 174, i. e.

$\left. \begin{matrix} ux \\ nx \end{matrix} \right\} :: 1 : p$, and compounding these Ratios, we have $pnx^2 :$

pnx^2

$\max :: 1 : p. \therefore \max = p \nu x^2$, and $m = \frac{p \nu x}{x} = \frac{x}{x} \times \overline{x+n}^2 + \nu x$,

as above.

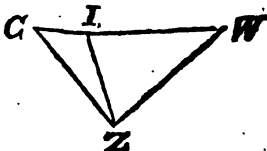
Now, by Substit. $\frac{v+b}{v-1} = x \therefore v = \frac{x+b}{x-1}$, which being put for v , in the foregoing Equation, and that properly reduced, there comes out, at last, $x^3 + 2nx^2 + \frac{cn^2 - vn - pn + t}{c} x = \frac{n}{c} \times \overline{bp + n}$. sol-

ved $x = 46,53$, from which v and x are easily found, and from thence we get $OC = 1,11116$, $CF = 6.98995$, $FD = .42649$, and $DE = .452444$. Q.E. I.

Mr. F. Holden gave a curious Solution, but without Numbers to compare; Mr. James Hartley, of Tarum, solved it; being all the Solutions we received.

VII. QUESTION 367, answered by Mr. F. Holden.

BY Dr. Halley's Afr. Tab. the *geocentric* Place of *Jupiter* at 9 h. P. M. of the given Day was $11^{\circ} 39' 58''$ with $52^{\circ} 59'$ Lat and by the same Tables the Long. of *Castor* rectified for the given Time was $16^{\circ} 46' 45''$ and its Lat. $10^{\circ} 3' 48''$ N. The Long. of bright $\star$ in *Whale's Tail* $\times$ $29^{\circ} 4' 27''$ and its Lat. $20^{\circ} 46' 52''$ S. Let then I, C, and W represent *Jupiter*, *Castor* and the *Whale's Tail*, and Z, the *Zenith* of the Place of Observation, *gnomonically* projected on a Plane touching the Globe at I, and we shall have, *per Spherics*, the Dist. of *Jupiter* and *Castor* = $36^{\circ} 36' 59''$, and IC = its Tang. In like Manner IW = Tang. $73^{\circ} 25' 56''$, and $\angle CIW = 176^{\circ} 50' 18''$. And, *per Gnomonics*. Rad : Cos. of *Jupiter's* Zenith Dist. whose Tang. = IZ :: T. $35^{\circ} 48'$: T. $\angle CZI$:: T. $78^{\circ} 29'$: T. $\angle IZW$.



Also IC : S. $\angle IZC$:: IZ : S. $\angle ICZ$ and IW : S. $\angle IZW$:: IZ : S. $\angle IWZ$, which four last mentioned $\angle$ s must together = CIW.— Whence by assuming for *Jup.* Zenith Dist. and proportioning with the Errors of the Results, we shall find the *Zen.* Dist. answering the above Condition = $67^{\circ} 43' 35''$; whence *per* common Methods, the Lat. and Long. of Z are found $39^{\circ} 35' 53''$ and $19^{\circ} 29' 55''$, respectively, and $\therefore$ its Decl. (= Lat. of the Place) = $52^{\circ} 19' 32''$ and its right Ascens. = $349^{\circ} 27'$, from which subtracting the Sun's right Ascens. at the above mentioned Hour = $186^{\circ} 41' 6''$ remains $152^{\circ} 45' 54''$, which turned into Time gives $10^h 51^m 3^s$ for the Time required.

The same answered by Mr. T. Cowper.

By Dr. Halley's astronomical Tables, the Places of the fix'd and of *Jupiter*, (then being nearly stationary, when his Place

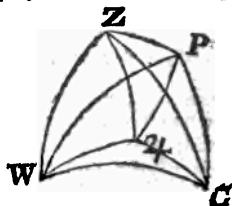
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or 11 varies but little) on the given Night, and also their right Ascensions, *viz.*

	Long.	Lat.	Rt. Ascen.	Decl.
Wba. Tail	$\times 29^{\circ} 4' 28''$	$20^{\circ} 46' 52'' S$	$7^{\circ} 46' 6''$	$19^{\circ} 21' 20\frac{1}{2}'' S$
Jupiter	$\Pi 11 39 56$	$0 53 0 S$	$70 15 48$	$21 21 0 N$
Castor	$- \overline{16} 16 46 26$	$10 3 48 N$	$109 40 88$	$32 24 22\frac{1}{2} N$

LET W, $\mathcal{U}$, and C, be the respective Places of the *Whale's Tail*, *Jupiter* and *Castor*. By Spherics, $W\mathcal{U} = 73^{\circ} 25' 54''$, $C\mathcal{U} = 36^{\circ} 37' 2''$, and $WC = 109^{\circ} 55' 45''$; likewise the Ang. $P\mathcal{U}W = 119^{\circ} 18' 50''$, $EW\mathcal{U} = 59^{\circ} 31' 44''$, and $C\mathcal{U}W = 176^{\circ} 50' 20''$.

Put $a = S. \angle WZ\mathcal{U}$, $b = S. \angle \mathcal{U}ZC$, $d = \text{Cos. } \angle CZW$, $n = S. W\mathcal{U}$, $r = S. C\mathcal{U}$, $p = \text{Cos. } WC$, s and $c = S. \text{ and Cos. } \angle C\mathcal{U}W$, x and $y = S. \text{ and Cos. } \angle W\mathcal{U}Z$.



Then $cx - sy = S. \angle C\mathcal{U}Z$, and *per* Trig. $a : n :: x : \frac{nx}{a} = S.$

WZ , and $b : r :: cx - sy : \frac{rcx - rsy}{b} = S. CZ$. But, by a known

$$\text{Spheric. Theorem, } \frac{dnrcx^2 - dnrsyx}{ab} = \sqrt{\frac{a^2 - n^2x^2}{a^2}} \times \sqrt{\frac{b^2 - r^2c^2x^2}{b^2}} \\ + \frac{2r^2csyx - r^2s^2y^2}{b^2} = p; \text{ or } dnrcx^2 - dnrsyx - abp = \sqrt{a^2 - n^2x^2}$$

$\times \sqrt{b^2 - r^2c^2x^2} + 2r^2csyx - r^2s^2y^2$, which reduced and solved, $x = 9798697 = 78^{\circ} 29' 3''$; Cons. $\angle C\mathcal{U}Z = 104^{\circ} 40' 37''$; whence $WZ = 73^{\circ} 25' 56''$, $\mathcal{U}Z = 67^{\circ} 43' 42''$, and $CZ = 80^{\circ} 32' 26''$, the Zenith Distances, and thence I find $ZP = 37^{\circ} 40' 46''$, comp. $52^{\circ} 19' 14''$, the Latitude required.

Again $\angle ZW\mathcal{U} - \angle P\mathcal{U}W = \angle PWZ = 11^{\circ} 33' 50''$; thence, the $\angle ZPW = 18^{\circ} 19' 20''$, the Dist. of the *Whale's Tail* in R. A. from the Meridian Eastward; at which Time the Sun's Place is $7^{\circ} 21' 6''$ and R. A. $186^{\circ} 44' 55''$.

Therefore from R. A. of *Whale's Tail* $+ 36c = 367^{\circ} 46' 6''$.
Deduct R. A. of $\odot$ — — — — — 186 44 55

	181	1	11
Meridional Dist. Sub.	18	19	20
	162	41	51

$= 10h 50m 47s$ the exact Time of the Night required.

Hence we may observe how near these two Solutions, performed by the Mathematicians, agree.

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VIII. QUESTION, 368, answered by Mr. Christopher Mason, the Proposer.

THE Property of Numbers considered, the first variable Factor must be an odd Number in all the Series, which must be 3, 7, and 9, for which put a , b , and c respectively; then $\frac{111}{a} = 37$; $\frac{222}{2a} = 37$; $\frac{333}{3a} = 37$, the constant Factor. Now, $\frac{111111}{b} = 15873$, the fixed Number. Also $\frac{22222222}{c} = 12345679$, $\frac{222222222}{2c} =$ Ditto, $\frac{333333333}{3c} =$ Ditto.

Mr. John Eades, of Truro, a Youth at School, sends 55555,5; 11111; 166666,5; 22222; 27777,5; 33333; 38888,5; 44444; 49999,5, for the variable Factors, which being multiplied by the constant Factor 2, produces 6 ones, 6 twos, 6 threes, &c. thro' all the 9 Digits: the variable Factors being obtain'd by dividing 6 ones, 6 twos, &c. by 2; and the same for 9 ones, 9 twos, &c. making the constant Factor 2.

IX. QUESTION. 369, answered by Mr. F. Holden.

LET MPO be half the Cone's Base, and A the Foot of the Perpendicular let fall from the Vertex, and let VMP (Fig. 2) represent the Cone's Surface extended on a Plane, V being the Vertex, and the Points M, p , supposed to have coincided with M, P, in Fig. 1, and call MB, x ; BP, y ; MO, d ; MA = a , and let the Perpendicular Height of the Cone

= b , then will $y^2 = dx - xx$, and $AB^2 = a^2 - 2ax + x^2$. $\therefore AP^2 = a^2 - 2ax + dx$, and $VP^2 = b^2 + a^2 - 2ax + dx$, or putting $b^2 + a^2$ (= VM^2) = m , and $a - \frac{d}{2}$ (= AC) = n ;

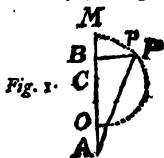


Fig. 1.

$VP^2 = m - 2nx$. $\therefore VP = \sqrt{m - 2nx}$, and

$\sqrt{VP} = \sqrt{m - 2nx}$, and $\sqrt{p}^2 =$

$\frac{n^2 x^2}{m - 2nx}$. Also $MP^2 = p^2 = x^2 +$

y^2 . But $y^2 = \frac{d}{2} x - x^2 = \frac{d^2 - dx + x^2}{4 dx - x^2} \times$

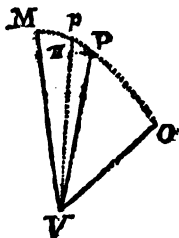


Fig. 2

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$$\dot{x}^2 \dots \dot{x}^2 + \dot{y}^2 = \frac{d^2 \dot{x}^2}{4 dx - x^2} = \overline{P} \dot{p}^2. \text{ But } \frac{n^2 \dot{x}^2}{m - 2nx} = \overline{\pi} \dot{p}^2 \therefore \overline{P} \pi^2 =$$

$$\frac{d^2}{4} \times m - danx + \cdot 2x^2$$

$$\overline{P} \dot{p}^2 - \overline{\pi} \dot{p}^2 = \frac{\frac{d^2 m}{4} - danx + n^2 x^2}{m - 2nx \times dx - x^2} \times \dot{x}^2; \text{ and } P \pi = \dot{x} \times$$

$$\frac{\frac{d^2 m}{4} - danx + n^2 x^2}{m - 2nx \times dx - x^2} \times \dot{x}^2 \text{ Whence } \frac{P \times V P}{2} = \text{Fluxion of the Area} =$$

$$\frac{\dot{x}}{2x)^{\frac{1}{2}}} \times \frac{\frac{d^2 m}{4} - danx + n^2 x^2}{d - x} \text{ whose Fluent will give the Curve}$$

Surface. Now $\frac{d^2 m}{4} - danx \times n^2 x^2$ put into a Series (writing q for

$m - 4ns$, and p for $q + 4n^2$) becomes $\frac{dm}{4} \times 1 + \frac{q}{dm} x + \frac{p}{d^2 m} x^2 + \frac{p}{d^3 m} x^3$, &c. whose Root $\times d$ by $\frac{x}{2x)^{\frac{1}{2}}}$. The Fluent taken, and x

made $= d$, will be $\frac{1}{2}$ the Curve Superficies of the Cone $= d \times \frac{m)^{\frac{1}{2}}}{2} +$

$$\frac{q}{12 m)^{\frac{1}{2}}} + \frac{4 p m - q^2}{80 \times m^{\frac{3}{2}}} + \frac{8 p m^2 - 4 q p m + q^3}{224 \times m^{\frac{5}{2}}} \times$$

$$\frac{64 p m^3 - 32 q p m^2 - 16 p^2 m^2 + 24 q^2 p m - 5 q^4}{2304 \times m^{\frac{7}{2}}} +$$

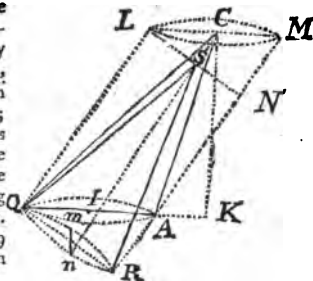
$$\frac{128 p m^4 - 64 p m^3 - 64 p^2 m^3 + 48 q^2 p m^2 + 48 q p^2 m^2 - 40 q^3 p m + 7 q^5}{5632 \times m^{\frac{9}{2}}}.$$

&c. which doubled, and added to the Area of the Base, will give the Surface of the whole Cone.

Mr. Charles Smith, of Rugby, gives the Curve Sur-	Inches.
[face of the Cone	87,9747
Area of the Base	28,2743
Whole Superficies	116.249

The same answered by Mr. James Hartley, of Yarm.

SUPPOSE the given Cone ACQ (whose Base QA is circular) to be circumscribed by the Scalene Cylinder $LMAQ$; and suppose the Cylinder cut in LN , and LM applied to QA ; then will the Cylinder, and it's inscribed Cone, QR , become right, both standing upon the Elliptical Base $QnRm$; having equal Surfaces with the former. Now, let $CQ=12=a$, $CA=9=b$, and $QA=mn=6=c$; then $\frac{a^2-b^2}{2c}=IK=5,25$, whence



$QK=8,25$ but $\overline{QC}^2 - \overline{QK}^2 = \overline{CK}^2$ and $\overline{CK}^2 + \overline{KI}^2 = \overline{CI}^2 = \overline{LQ}^2$ therefore the perpendicular Height of the right Cylinder and Cone $=10,1735$. Then per *Sim. Δ^s* , as $CI : CK :: QA : QR = 5,13935$, which let be $=c$, the conjugate Diameter of the Ellipsis; then by a new Theorem which finds the Circumference of an Ellipsis nearly true, viz. $\left(\frac{3,1416 \times 3,1416}{4} = 2,4674, \right)$

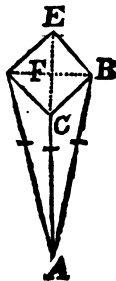
$2\sqrt{11+4,674c+cc} = QnRm = 17,53$. And having the two Diameters of the Ellipsis and its perpendicular Height, the two slant Sides sn and sR will be found $=10,6066$ and $10,493$ respectively, then one fourth of their Sum being multiplied into the Circumference $17,53$ gives $92,468997$ for the Area required.

X. QUESTION, 370, Answered by Mr. John Honey.

GIVEN $AB=AD=78$ Poles, $=a$, and $AC=59,161$ Poles $=c$, consequently (putting $x=FC=FE$) $c^2 + 2cx + 2c^2 = a^2$, whence

$$x = \frac{\sqrt{\frac{c^2}{4} + \frac{a^2}{2} - c^2}}{2} = \frac{c}{4} = 17.0241,$$

whence the Side of the square Field is found $24,0757$ Poles, and Area 3 Acres, 2 Roods, 19 Poles, 639 , &c.



So.

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The Same answered by Mr. F. Holden.

LET AHBGE be such a Part of the Circle as by revolving round EG would generate a Solid similar to the Cask, then by Means of the given Dimensions $AE = 12$, $HF = 18$, $EF = 24$, we find the Rad. of the circular Arch $= 51$, which let HM represent, and complete the $\square$ EGNML. Now supposing the whole Area AHBNL to revolve about NL, it is plain that beside the Cylinder generated by LEGN, the Solid generated by AHBGE, will exceed that generated by it, when revolving about EG by the Product of the Area AHBGE $\times$ the Dist. moved over by the Line EG, i. e. into the Circumference of a Circle whose Rad. is $MF = 33$. Therefore,

If from the Content of the whole Frust. generated by AHBNG, found per common Methods	Solid Inches.
We sub. the Cont. of the Cylin. generated by LEGN	363268,6437
	164217,3312
	199051,3105

And from the Remainder take the Product of the Area of the generat. Plane AHBGE ($= 770,37933$) multiplied by the Circumference of a Circle generated by MF $= 207,34511$	159734,3907
	39316,9198

The Remainder will be the Content required, or } 139,4217016 Ale Gallons.

Mr. T. Huntley's Solution gave 139,256 Ale Gallons. Mr. Alexander Rowe, the same. Mr. James Hartley exactly solved this Question partly like Mr. Terry, and the following by Mr. Holden.

Mr. Holden otherwise makes ABGE, the generating Plane, M being the Centre of the circular Arch AB, $HM = MA = r$, $FM = x$, $AO = EF = l$, $GB = EA = b$, and $Fn = x$, $mn = y$, $p = 3.14159$; and gets $px \times r^2 + e^2 - x^2$, $- 2px \sqrt{r^2 - x^2}$, the Fluxion, of half the Cask; the Fluent of the former Part of the

Fluxion, being $px \times r^2 + e^2 - \frac{x^3}{3}$, and of the latter (resolved into

$\frac{2per^2x - 2px^3}{\sqrt{r^2 - x^2}}$) being taken in two Parts, has the whole Fluent,

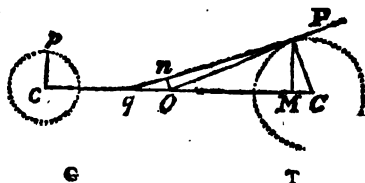
(when $x = l$) $p \times r^2 + eb - \frac{l^3}{3}$, $- per \times$ Arch AF $= \frac{1}{2}$ Content;

whence whole Content $= 139,4211$ Ale Gallons, as before.

Mr. Jos. Orchard, by a similar Process to Mr. Terry's confirms the same Truth, who refers to Mr. Emerson's Doctrine of Fluxions. P. 211.

XII. QUESTION 372, answered by Mr. F. Holden.

LET C and c represent the Centres of the Earth and Moon, CP and cp their respective Radii, and let O and q be two Points infinitely near each other in the Line Cc joining their Centres. Let OP be a



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Tangent to the Earth in P, and draw On perpendicular to Pg, and PM perpendicular to CO; then calling CP (R), PO (T), CO (S), and Og ($\dot{S}$) we shall have *per sim. Trian.* $S : R :: \dot{S} : On = \frac{R \dot{S}}{S}$, and $T : On (\frac{R \dot{S}}{S}) :: R : \frac{RR \dot{S}}{TS}$, which is the Fluxion of

the visible Arch AP, and this multiplied by its Sine PM, will be the Fluxion of the visible Part of the Earth's Surface; Now, *per Lem.*

$$\text{Triang. } S : P :: R : PM = \frac{TR}{S}, \text{ which multiplied by } \frac{RR'S}{TS},$$

gives $\frac{R_3 S}{S^2}$. After the same Manner putting $Cr=$, $cp=$, and $co=$

$\frac{1}{2} S$; which added to the former Fluxion, and the whole made

$= 0$, as per Quest. gives $\frac{R^3}{S^2} - \frac{r^3}{s^2} = 0$; this Equation (by

substituting $\frac{r}{R} = g$, completing the Square, &c.) gives $S = a \times$

$$\frac{1+q^{\frac{3}{2}}}{1-q^3}, \text{ and making } q = \frac{217}{797}, \text{ as per Question, S comes out =}$$

244,584 Miles = the Distance of the *Spectator*, from the Earth's Centre; from which subtracting 3985, the Earth's Semidiameter, we have 210,599 Miles = the Distance of the *Spectator* from the Earth's Surface; and 294,012 = the Distance of the *Spectator* from the Moon's Surface. Q. E. I.

Mr. Brewster, the Proposer, solved it in the same Numbers.

The same answered by Mr. James Hartley, of Yarum.

Given GF

240000

EB

Page 1085

b. $CD' =$

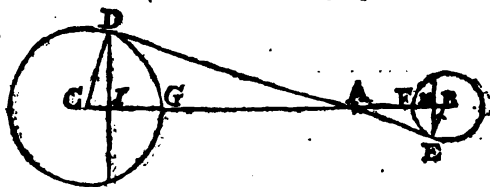
 $3985 = c,$

fr. whence

EB = 245

 $070 \equiv d ;$

take x ==



AB, and $s = 6,2832$, then *per* similar Triangles; $x : b :: b : \frac{b^2}{s}$

$= HB$, whence $\frac{bx-b^2}{x} = FH$. Again, $AC = d - x$, and $d - x$

$$\frac{r^2}{d-x} = CI, \text{ whence } \frac{cd-ex-rc}{d-x} = IG; \text{ but } x \times$$

of

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ADB; therefore $bx - ax - 2ax + ab = \frac{1}{2}$ Area of the Curve; and expanding a ; then $\frac{bx^2 + bx^2 - 2x^3}{2x} = \frac{1}{2}$ the Area. This in Flux-

ions made equal to 0, and reduced, is $bx^2 - bx^2 + 2bx - 6bx^2 + 2x^3 = 0$. Divide by $2x$, and again substitute a , for its Value, and it will be $bx + bx - 3x^2 + \frac{x^3}{x} = 0$. The Area ACB $= 2ba + bx$

$+ bx - 3x^2 = \frac{bx^2 + bx^2 - 2x^3}{2x}$, from whence (and the Equations above) $x = 17$, $x = 13,857$, $a = 3,50018$, and the Area of the whole $= 158,84$, being circumscribed about an *Equilateral Triangle*, whose Side AE $= 16$.

N.B. We are forced to omit Mr. *Jeppson's* elaborate Solution, for want of Room; but propose to publish it hereafter; which and the Solution inserted, were all the Solutions to this Question that we required.

The PRIZE-QUESTION, answered by the Proposer only, Mr. James Hartley, of Yarm.

LET DM $= a$, and $AM = x$, $.7854 = s$ and (d) equal to the Depth of the Vessel, then $\frac{7a^2sd}{3} = \frac{21a^3s}{6} =$ whole Content, and

by a Theorem in *Ladies Diary* 1744. $\frac{am \times Dm \times 4s}{3Dn} \times$

$DM^2 = \sqrt{BM \times mM^3} =$ Area $AmDA$; but by similar Triangles $am = 3Dn$; therefore the Theorem in this Case will be $4as \times a^2 = \sqrt{ax^3}$, $=$ Area $AmDA$ which taken from $\frac{21a^3s}{6}$ leaves $4asx$

$\sqrt{ax} - \frac{1}{2}a^3 =$ Area $AmEF$, Then, per *Mechanics*,

As $CB : aB ::$ the Weight of Water (which is always as the Quantity)

remaining in the Vessel : the Tension

of the Cord $Pm = W$. And as the $\Delta s CdB$

and Amn , are sim. $\therefore Am : mn ::$ Area

$AmEF : Tension = W$. But $am = 3a -$

$3x$, and $An = a + x$. Hence $Am =$

$\sqrt{10a^2 - 16ax + 10x^2}$; therefore as

$\sqrt{10a^2 - 16ax + 10x^2} : 3a - 3x ::$

$4asx \sqrt{ax} - \frac{1}{2}a^3 : 3a - 3x \times$

$\frac{4asx \sqrt{ax} - \frac{1}{2}a^3}{\sqrt{10a^2 - 16ax + 10x^2}}$, which by the Question is a Maximum. Now

let s be rejected, and a made $= 1$, then what comes out for the

of x must be multiplied into 10, because $a = 10$, the

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$\frac{12x\sqrt{x} - 12x^2\sqrt{x} + \frac{1}{2}x - \frac{1}{2}}{\sqrt{10-16x+10x^2}}$, is a *Maximum*. This in Fluxions

made = 0, and reduced, $60x^4 - 148x^3 + 164x^2 - 60x = x + 1 \times \sqrt{x}$; from whence x may be found = ,681874, which, multiplied into 10, is 6,81874 = π . Hence $4\pi\sqrt{ax} - \frac{1}{2}a^3 = 1376,215485$ Inches = the Quantity of Water, and its Weight = $\frac{8x\sqrt{ax} - a^2}{7} = 50,064225$ lb. And $\frac{3a-3x}{7\sqrt{10x^2-16ax+10x^2}}$

= Tension = 24 lb. 11,3296 = W ; and $\frac{100\sqrt{10a-6ax+1x^2}}{3a-3x}$
= PC = 202,623; for $am : Am :: aC : PC$. Q. E. I.

ANSWERS to the Paradoxes, in the Ladies Diary 1753.

I. PARADOX, answered by Cunundrumensis.

HIS Lordship's House is so situated, that his *marvellous* Road to any Place near to, or at a Distance from it, may be thro' an *Avenue*, or near Passage out of it; or by the Side of a *River*, running *directly* South. Or, if a *Plain* is supposed to divide the Northern and Southern Hemisphere, we that live in the Northern must move towards the Southern Hemisphere, let us move which way we will.

But yet the Point of *Vice* was ne'er agreed,
Ask where's the *North*? At *York* 'tis on the *Tweed*—
In *Scotland*, at the *Orcades*; and there
In *Greenland*, *Zembla*, or the Lord knows where.

POPE's *Ethic.* Epistle II.

II. PARADOX answered by the Proposer.

SUCH a Son may be called an *Alien Traitor*, and so have no inheritable Blood. In which Case the Lands, according to Common Law, go to the Daughter, and afterwards to the Son.

DIARY EMENDATIONS for 1754.

QUESTION. By Urbanicus

A poor crippled Jade cost a *Crown* and a *Guinea*,
And was sold for three Pounds by his Master, a *Ninny*:
Half the *Purchase*, and fourth of the *Keeping* he lost,
How much did the *Keeping* this *Wiseacre* cost?

QUEST

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QUESTION by A Laureat.

A Cuckold I, my Wife's a Wh—, } *x* is the Wife's Wit
The like, no Doubt, you've heard before ; } to *y* the Husband's.
Her Wit to Mine, then pray explore. *

$$*xx + yy \times \frac{y}{x} = a = 83,2.$$

$$xx - yy \times \frac{x}{y} = b = 1920.$$

PRIZE. By BAΘΩΣ.

Mr. Shallow should take Care that his Bridge and Depth of Water don't deceive him, since the Experiments, on which he builds his Theory, must be very accurate to support it from falling: As there possibly may be a different Complication of Causes to produce the same Effect. *Quere, the precise Height the Water will rise from the common Level, by the Resistance of the Peers of a given Form. Dimension, and Position, to a geometrical Mussy, admitting all Complications of Causes possible?*

ADVICE to the ÆNIGMATISTS, in the Ladies Diary, for the Year 1754.

Ænigma obscuris testis est Sententia Verbis.

YOUR Subject chuse,—fall instantly to Work,
Go not from PAUL's to 'CHANGE by Way of York.
Let every Line to the fix'd Centre tend,
Each Simile, inclining thither, bend.
Bombast and tedious Prefaces avoid,
They leave the Reader with your Labours cloy'd.
Superfluous Words, the Want of Art proclaim,
And like much Fuel, damp the rising Flame.
Tales and Ænigmas ne'er should be too long;
But SMART and pithy as a *few* rim Song.
They're Trifles all—Who then would pore all Day,
To seek a PIN amidst a Load of Hay?
Would you gain Praise, or hope to oblige the FAN?
Oh! gently! gently! take her by the Ear;
As gently lead her through the pleasing Maze,
On ev'ry Side delightful Objects raise:
Shew her through Clouds, oppos'd—the rising Sun;
Shew her what most she likes—or you're undone.

But, while from limping Verse you hope Success,
Small MUST be your Returns, your Knowledge less.
Reptiles of Earth!—Go, like the short-liv'd Fly.
Visit the Grocer, Pastry-Cook, and DYE, ¶

Go; bid Simfonius storm—and fighting say!
Though Odds were Threes to ONE—I've lost the Day!

PEGASUS.

I—T, M—B—ll, S—mp—n and T—r—r. ¶ We say a
cook dies, when it is knockt up. The

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The NAMES of the *Principal Contributors* to our several
WORKS, who are Promoters of TRUTH and useful
SCIENCE.

A	F	L
A ADASTREA <i>Amelia</i> <i>Amanda</i> <i>Alspia</i> Mr <i>John Adams</i> Mr THOMAS ALLEN <i>Abdiel</i> <i>Amicus</i> Mr <i>Algebra</i>	Mr <i>John Fish</i> <i>Fidelia</i> Mr ROE, FEARNSEIDE Mr FIELDING <i>Miss Fairfax</i>	Mr <i>John Lydal</i> <i>Lucinda</i> LEONIDAS <i>Miss Little</i> <i>Miss Love</i>
B	G	M
<i>Belinda Amoreta</i> Mr GEORGE BROWN Reverend Mr BAKER <i>Belinda of Oxford</i> Mr <i>W. Bevil</i> Mr <i>Beesflower</i> <i>Britannicus</i> Mr <i>Robert Butler</i> Mr BOYCE Mr <i>A. Brooke</i> Mr <i>William Bamfield</i> BLOWSABELLA Mr <i>J. Boster</i> Mr <i>Richard Burson</i> Mr <i>Thomas Bingham</i> Mr <i>Robert Butler</i>	Mr <i>Richard Gibbons</i> Mr <i>Edward Gillyat</i> Mr <i>William Gibbons</i> Mr <i>Edward Griffiths</i> <i>Miss Greenwood</i> Mr <i>Gregory</i>	Mr <i>Charles Mason, jun.</i> Mr CHRIS. MASON Mr THOMAS MAUDE MERONES Mr <i>Morgan</i> MORPETHENSIS Mr <i>Midwinter</i> Mr <i>Alexander Man</i>
C	H	N
Mr <i>William Cattam</i> Clericus Mr THOMAS COWPER CHESTERFIELDIEN- SIS Mr <i>John Chester</i> <i>Casuisicus</i> Mr CHAFFLE Mr <i>William Claydon</i> <i>Celadon</i>	Mr RALPH HULSE Mrs ANN HULSE Mr <i>William Honor</i> Mr JAMES HARTLEY Mrs <i>J. Hampson</i> Mr THO. HUNTEY Mr <i>Little Hoole</i> Mr <i>William Hardy</i> Mr J. HOLLING- WORTH Mr F. HOLDEN Mr J. HOLDEN Mr R. HOPFER Mr <i>Samuel Hammond</i> Mr <i>Samuel Halifax</i> <i>Miss Halifax</i> Mr <i>J. Hirst</i> Mr <i>Joseph Hilditch</i> Mr <i>John Honey</i> Mr <i>John Hoyle</i> Mr <i>John Hayes</i> Mr <i>Walter Hawk</i> Mr <i>Hopkinson</i> Mr <i>Samuel Hopley</i> <i>Miss Hybla</i>	Mr ALEX. NAUGHLEY <i>Numericus</i> Mr NICHOLSON <i>John a Nokes</i> Mr <i>Newport</i>
D	I	O
NICHOLAS DIXON Mr <i>Dodwell</i> Mr <i>William Dent</i> Mr DRUMMOND	Mr WILL. JEPSON Mr <i>Francis Joco</i> Mr <i>Daniel Lisse</i> <i>Miss ILCHESTER</i>	Mr JOSEPH ORCHARD Mr <i>Oatt</i> Mr <i>Orford</i> Mr <i>Orme</i>
E	K	P
Mr <i>Robert Eling</i> <i>Eboracensis</i> Mr <i>Edmonds</i> Mr <i>John Eades</i>	Mr <i>Francis King</i> <i>Kalopbilus</i>	Mr <i>John Potter</i> Mr <i>William Pirson</i> Mr. <i>William Pimma</i> <i>Prudentia</i> PHILOTHEOROS <i>Philomathes</i> <i>Philosophicus</i>
F	L	Q
		<i>Quæstus</i> <i>Quibus</i>
R	S	R
		Mr <i>John Rickerby</i> Mr <i>Randles</i> Mr <i>Alexander Rozze</i> Mr JAMES ROBINSON Mr. <i>John Ramsay</i> <i>Miss Grace Rhinehill</i> Mr <i>William Robson</i> <i>Miss Ridgely</i> <i>Ralph Ridley, Esq</i> <i>Miss Roundo</i>

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Mr George Stapely	Mr Charles Tate	Mr Philip Williams
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Mr John Sax	TARTINOS	Mr Henry Watfon
Mr Henry Salmon	V.	Mifs Sop. WESTERN
SALAMANDER	Viator	Y
Mr John Stiles	Vulcan	Mr George Terwood
T	W	
Mr JAMES TREY	Mr Robert Williams	

N. B. Those Gentlemen and Ladies in Capitals, either solve most of the Questions and Enigmas, yearly, or send Contributions extraordinary.

The following Improvements of our ROYAL DIARY, or EPHEMERIS, in Palladium, for 1754, render that Work the more perfect.

Jan. 4. Col. h. r. 8° 55'	Sep. 15. Col. 2 r. 4° 9'	No. 26. Dec. 21. 1° 41'
31. June 12 3	pl. 5 43	14. Lat. 3° 37'
Mar. 3. same 14 59	24. Col. 2 12 26	11 pl. 4 5
May 24. Col. 2 25 36	28 pl. 3 35	Dec. 1. R.
31. pl. 2 26	29 Col. 2 15 44	4 pl. 24. 44.
Jun. 1. Lat. 0 41	30 Col. 2 3 21	8 pl. 27 7
Aug. 19. Col. 2 18 19	Oct. 16. Dec. 8 57	July 12. Q. a.
Sep. 4. Lat. 0 S 18	&c.	26. F. Q. 4 h 19
		aft. at Top.

Lunar Aspects.—Jan. 17, ☉ 16. 31. ☽ 3. Mar. 1. ☽ 16. Ap. 3, ☽ 11. 8. 24 3. May 12, 24 40. 31. ☉ 1. Jun. 20, ☽ 10. 30. ☽ 9. Aug. 2, ☉ 14. Sep. 5, blot ☽ 16. 28. ☽ blot 14. Dec. 7, ☽ 13. 17. ☽ 19. ☽ 9. 27. ☽ 13. p. 55. Ecl. Cha. Town, r. End apparent.

Bottom of Ephemeris.—Mar. 1. 24 sets 5, 43, 26. ☉ flow 5° 51' April 26. Length D. 14 h 30m. July 6. ☽ ☉. August 6. ☉ ri. 4, 26. Sep. 1. 24 ri. 4, 30; 26. ☉ sets 5, 57. Oct. 21. h sets 8, 57. Nov. 16. h sets 7, 24. Dec. 6. ☉ ri. 8, 1. Ibid. h sets 6, 9; 26. h sets 4, 52. Moon rises. May 21. 3 h 56m August 11. D souths, 5 h 43; 15. Souths 9, 12.

Mutual Aspects.—Oct. 3. ☉ h ☽ 8. 12. ☽ ☽ 8. For Oct. 11. r. 25.

Moon's Q Node.—Feb. 1. 20° 4'. July 26. 100° 56' Nov. 16. 70° 31' 22

Emersions.—Mar. 6d 3 h 34m &c. June 2d 15' 44m, &c.

Immersion.—Nov. 28. 7, &c. Dec. 19. 13. 8, &c.

Fixed Star's Rising.—Jan. 11. Arista ri. 0 h 33. March 21; ri. 7, 59. August 11. Right Should. Or 21, 42. Sep. 21. Vult. S° 7, 43.

REMARKS on the LADIES DIARY, 1754.

IN the Eclipse, March 23, the Sun cannot be vertical to a little Sea, West of Terra Firma, Lat 8° N. as mentioned in the Ladies Diary, for 1754; because the Sun's Declin. is then about 1° 16' N. And the Lat. where he is vert. must be always the same as his Decl.

In the Lon. of the Pl. where the ☉ is vertical at Middle of the pse on Oct. 1st. which Mr. Hulse makes but 90° should be 150° at least. A notable Instance of the Judgment of the three pre-Compilers, "far above soliciting Contributions from Any."

c Livery of one Rollison born and bred up at Sheffield, now deser.

